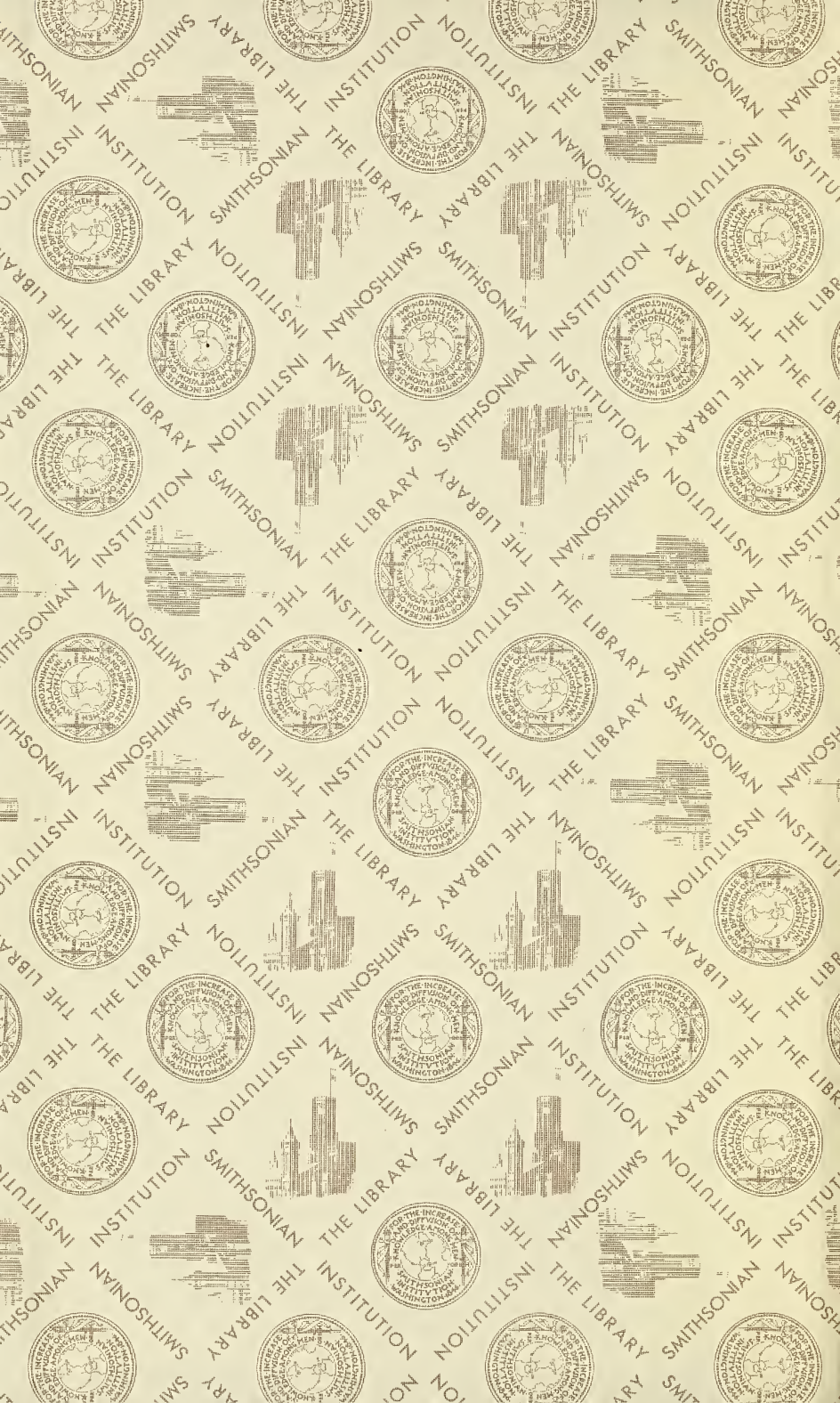
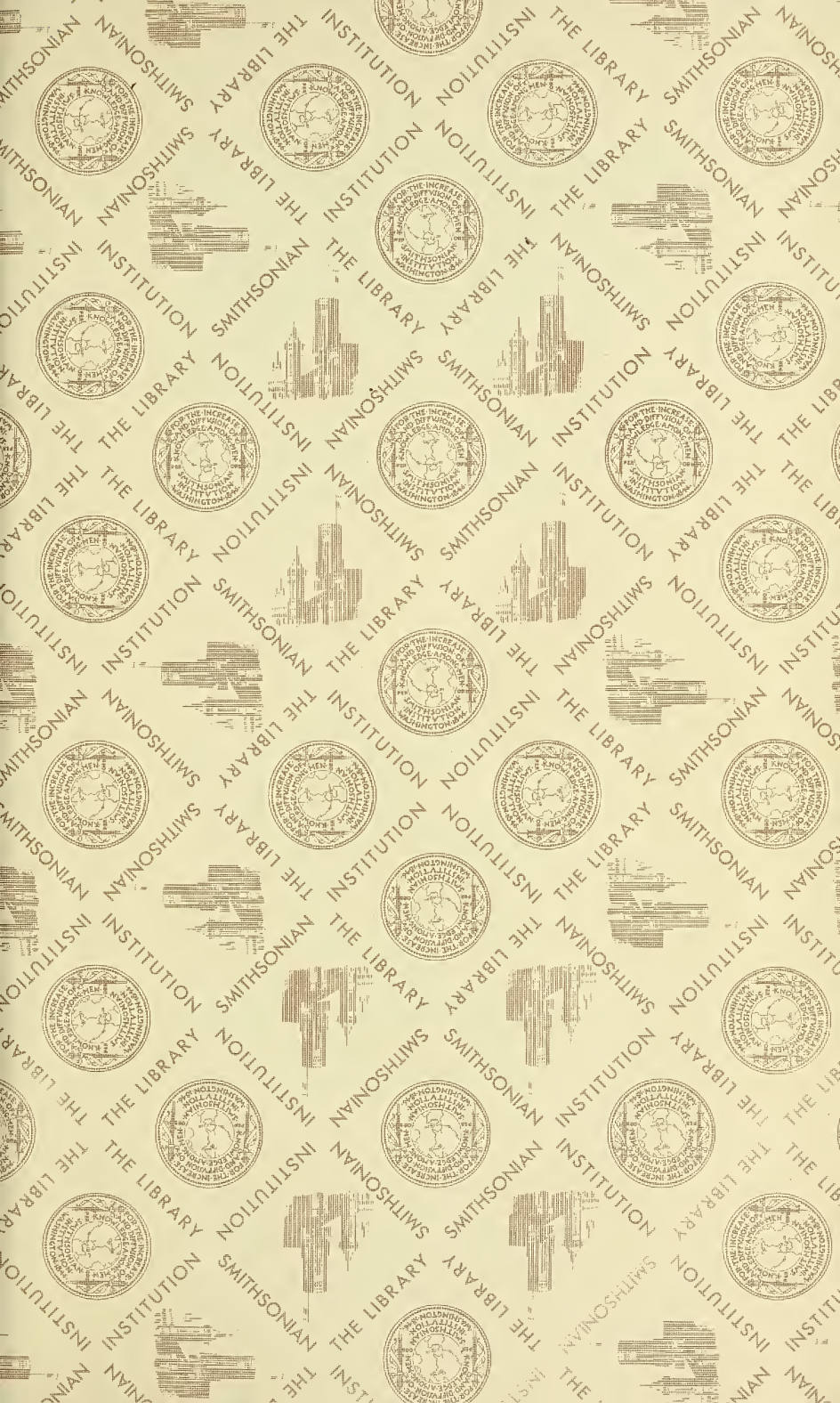






14-1

THE AVICULTURAL MAGAZINE

BEING THE JOURNAL OF THE
AVICULTURAL SOCIETY

EDITED BY
PHYLLIS BARCLAY-SMITH, M.B.E.

VOL. LXVIII
JANUARY, 1962, to DECEMBER, 1962

HERTFORD
STEPHEN AUSTIN & SONS, LTD.

1962

CONTENTS

TITLE-PAGE	i
CONTENTS	iii
LIST OF CONTRIBUTORS	iv
LIST OF PLATES	vii
OFFICERS FOR THE YEAR 1962	<i>I</i>
OFFICERS OF THE AVICULTURAL SOCIETY PAST AND PRESENT	2
MAGAZINE	<i>I</i>
INDEX	217

LIST OF CONTRIBUTORS

ARTICLES

ANDERDON, S. M.

Foreign birds at the National Cage Bird Show, Olympia, 72.

COPLEY, ROBERT A.

Hooded Mergansers, 166.

COTTERELL, Sir RICHARD.

Breeding the Black-bellied Firefinch (*Lagonosticta rara*), 27.

DAVIS, Sir GODFREY.

I dwell in marble halls, 88.

DEAN, A. W. S.

Breeding of Pink-footed Geese, 54.

D'EATH, J. O.

Unusual diet of an Eider Duck, 168.

DELACOUR, J.

The American quails (Tribe Odontophorini), 15.

Clères 1962, 165.

DORMER, B. P. See HARRISON, C. J. O.

DUNHAM, DAVID W.

Feeding of a Java Finch (*Padda oryzivora*) by a domesticated Canary (*Serinus canarius*), 208.

EVERITT, CHARLES.

The breeding of the Bengal Pitta, 33.

Breeding the Black-headed Sugarbird (*Chlorophanes spiza*), 49.

Breeding the Derby Flycatcher (*Pitangus sulphuratus*), 64.

The breeding of the Fairy Blue Wren *Malurus cyaneus*, 84.

The Paradise Rifle-bird, 95.

Breeding the Red-legged Water-Rail, 179.

FLETCHER, A. W. E.

News from Chester Zoo, 109, 173.

Breeding Eagle-Owls at Chester Zoo, 146.

FORSHAW, JOSEPH M.

The parrots of Australia, 98.

The parrots of Australia. 2, The Eastern Rosella, 129.

The parrots of Australia. 3, The Red-backed Parrot (or Red-rumped Parakeet), 199.

GEWALT, WOLFGANG.

New efforts in breeding the Great Bustard (*Otis tarda* L.), 169.

GOODWIN, DEREK.

Some notes on my Blue-headed Waxbills (*Uraeginthus cyanocephalus*), 117.

HALLSTROM, Sir EDWARD.

Some breeding results in the Hallstrom collection, 46.

HARRISON, C. J. O.

A Silverbill $\times$ Bengalese Finch hybrid, 30.

Hand-rearing and the ability to find food, 90.

Observations on Rufous-chinned Jay-Thrushes (*Garrulax rufogularis*), 188.

HARRISON, C. J. O., and DORMER, B. P.

Notes on the display and behaviour of Peter's Twinspot and the Brown Twinspot, 139.

HENRY, G. M.

The Ceylon Lorikeet (*Loriculus beryllinus* (Forster)), 81.

ISENBERG, A. H.

Further notes on the breeding of the Red Bird of Paradise, 48.

An interesting hybrid and other birds bred at Portola Valley in 1961, 66.

The breeding of Allen's Hummingbird *Selaphorus alleni*, 86.

JOHNSON, F. E. B.

The care of ornamental pheasants, 10.

JONES, TERRY

Mr. and Mrs. Milligan's methods of keeping pheasants, 22.

✓ LASIEWSKI, ROBERT C.

The capture and maintenance of hummingbirds for experimental purposes, 59.

LONDON, ALAN.

Further notes on the Golden-shouldered Parrakeet (*Psephotus chrysopterygius* Gould), 70.

LINT, KENTON C.

Breeding of Rothschild's Grackle, 153.

LONGHURST, ALAN R.

The New Zealand Honeyeaters, 45.

MAXWELL, P. H.

The breeding of the Severe Macaw (*Ara severa severa* (Linnaeus)) in the Pheasantry at Whipsnade Park, 35.

NAETHER, CARL.

Some random observations of the behaviour of wild pigeons and doves in captivity, 93.

Sidelights on the nesting behaviour of the Key West Quail Dove, 136.

A nesting of the Key West Quail Dove : Third report, 170.

NICHOLSON, N.

Keeping and breeding Peale's Parrot Finches (*Erythura pealii*), 197.

OLESON, E. NORGAARD.

Breeding the Blue Sugar Bird (*Dacnis cayana*), 211.

ORNAMENTAL PHEASANT TRUST.

Annual report, 1961, 2.

PRESTWICH, ARTHUR A.

British Aviculturists' Club, 40, 76, 112, 175.

News and Views, 40, 77, 113, 148, 176, 213.

Council Meeting, 112.

Annual subscription, 116.

RICHARDSON, R. A.

Liberty breeding of the Indian White-eye (*Zosterops palpebrosa*), 51.

More adventures with liberty White-eyes, 209.

SCAMMELL, K. M.

The breeding of the Rubythroat (*Calliope calliope* (Pallas)), 155.

The breeding of the Himalayan Rubythroat (*Calliope pectoralis* (Gould)), 158.

The breeding of the Pied Bush Chat (*Saxicola caprata* Linnaeus), 162.

SEARLE, K. C.

The Roulroul (*Rollulus roulroul*), 13.

SIMMONS, K. E. L.

Jay-Thrushes and acorns, 182.

VAN DER MARK, R. R. P.

Tragopans, miraculous birds, 20.

VINSON, MARK

Random observations in a waterfowl collection, 68.

WAYRE, PHILIP.

Elliot's Pheasant (*Symaticus ellioti*), 1.

WOODWARD, IAN D.

The seasonal development and changes in plumage of the whydahs *Vidua* and the weavers *Euplectes*, 106.

Breeding behaviour of the Chinese Painted Quail prior to the chick stage, 143.

YEALLAND, J. J.

The Painted Quail, 24.

Transport of birds by air, 36.

London Zoo notes, 38, 76, 111, 147, 174, 212.

A new aviary at Wassenaar, 71.

CORRESPONDENCE

A scheme for the ringing and registration of pheasants, F. E. B. Johnson, p. 44 ; A note on "nidification", D. G. Scragg, p. 44 ; "A Meeting of Parrots", Alan Lendon, p. 79 ; The Purple Gallinule in Great Britain, E. H. Lousley, p. 80 ; Captive Antarctic Skua swallowing a pink woollen glove, Bernard King, p. 80 ; Is groundsel an undesirable item of birds' diet, Ian Woodward, p. 152 ; Breeding Australian Blue Wrens, Alex Isenberg, p. 178 ; Unusual sized clutch of Red-breasted Goose, J. M. Hay, p. 178 ; Shelduck breeding in captivity, N. J. Hori, p. 178.

LIST OF PLATES

*Elliot's Pheasant	facing page	I
Male Satyr Tragopan in display	„	20
Satyr Tragopan chicks, three weeks old	}	21
Satyr Tragopan chicks, three months old		
*Tui or Parson bird	„	45
Feeding hummingbirds	„	62
Cages for hummingbirds in a laboratory	„	63
The new "walk-through" aviary at Wassenaar Zoo	„	71
*Ceylon Hanging Lorikeet	„	81
Display of Paradise Rifle-bird (6 plates)	„	96, 97
*Blue-headed Waxbill	„	117
Rothschild's Grackle, <i>Leucopsar rothschildi</i>	„	153
Young Rothschild's Grackle, 20 days old, hatched in Zoological Gardens of San Diego, 22nd June, 1962	„	154
Red-legged Water-Rails and young	„	179
Open forest country near Canberra	„	202
Male Red-backed Parrot (<i>Psephotis haematonotis</i>) inspects prospective nesting hollow	„	204
Female Red-backed Parrot (<i>Psephotis haematonotis</i>) at nesting hollow	„	205

* Denotes a coloured plate.

8.20542
94
11/15

AVICULTURAL MAGAZINE

K-8



CONTENTS

	PAGE
Elliot's Pheasant (<i>Syrnaticus ellioti</i>) (with coloured plate), by PHILIP WAYRE	1
Ornamental Pheasant Trust—Annual Report 1961	2
The Care of Ornamental Pheasants, by F. E. B. JOHNSON	10
The Roulroul (<i>Rollulus roulroul</i>), by Dr. K. C. SEARLE	13
The American Quails (Tribe Odontophorini), by J. DELACOUR	15
Tragopans, Miraculous Birds (with plates), by R. R. P. VAN DER MARK	20
Mr. and Mrs. Milligan's Methods of Keeping Pheasants, by TERRY JONES	22
The Painted Quail, by J. J. YEALLAND	24
Breeding the Black-bellied Firefinch (<i>Lagonosticta rara</i>), by Sir RICHARD COTTERELL, Bt.	27
A Silverbill × Bengalese Finch Hybrid, by C. J. O. HARRISON	30
The Breeding of the Bengal Pitta, by CHARLES EVERITT	33
The Breeding of the Severe Macaw (<i>Ara severa severa</i> (Linnaeus)) in the Pheasantry at Whipsnade Park, by P. H. MAXWELL	35
Transport of Birds by Air, by J. J. YEALLAND	36
Council Meeting	37
London Zoo Notes, by J. J. YEALLAND	38
British Aviculturists' Club	40
News and Views	40
Reviews	43
Correspondence	44

THE AVICULTURAL SOCIETY

Founded 1894

President : D. Seth-Smith, Esq.

Hon. Secretary and Treasurer : A. A. Prestwich, Galley's Wood,
Limpsfield, Near Edenbridge, Kent.

Assistant Secretary : Miss Kay Bonner.

Membership Subscription is £1 per annum, due on 1st January each year, and payable in advance. Life Membership £15. Subscriptions, Change of Address, Names of Candidates for Membership, etc., should be sent to the Hon. Secretary.

THE AVICULTURAL SOCIETY OF AMERICA

Hon. President : Mr. Jean Delacour.

President : Mr. Paul Schneider.

Secretary : Mr. Otis Wade, 1806 Redesdale Avenue, Los Angeles 26, Calif.,
U.S.A.

The annual dues of the Society are \$2.50 per year, payable in advance. The Society year begins 1st January, but new members may be admitted at any time. Members receive a monthly bulletin. Correspondence regarding membership, etc., should be directed to the Secretary.

THE AVICULTURAL MAGAZINE

The Magazine is published bi-monthly, and sent free to all members of the Avicultural Society. Members joining at any time during the year are entitled to the back numbers for the current year on the payment of subscription. All matter for publication in the Magazine should be addressed to :—

The Editor : Miss Phyllis Barclay-Smith, 51 Warwick Avenue, London,
W. 9. Telephone : Cunningham 3006.

The price of the Magazine to non-members is 5s., post free, per copy, or £1 10s. for the year. Orders for the Magazine, extra copies and back numbers (from 1917) should be sent to the publishers, Stephen Austin & Sons, Ltd., Caxton Hill, Ware Road, Hertford, England. Telephone : Hertford 2352/3/4.



ELLIOT'S PHEASANT.

AVICULTURAL MAGAZINE

THE JOURNAL OF THE AVICULTURAL SOCIETY

Vol. 68.—No. 1.—All rights reserved.

JANUARY-FEBRUARY, 1962

ELLIOT'S PHEASANT

(*Syrnaticus ellioti*)

By PHILIP WAYRE (Norwich, England)

Elliot's Pheasant is one of the most striking of the long-tailed pheasants. The male is a particularly attractive bird with a clearly defined plumage pattern. The feathers of the upper breast and mantle have bright copper tips, giving the effect of a rufous sheen. Young birds are dull, rather like the adult female but young males soon show barred tail feathers.

These birds breed fairly easily in captivity, although the males are sometimes bad tempered, and likely to kill the hens. As with many of the rarer pheasants the stock in this country at the present time is rather inbred and consequently there is a certain amount of infertility. Elliot's will breed quite well in small pens and the Trust has bred a number of young from a pair kept in a pen measuring only 20 by 10 feet. A larger pen is to be recommended. Two or three hens may be run with each cock, and it is an advantage if there is plenty of natural cover in the pen.

The hen Elliot's is one of the earliest layers, usually beginning in March, and each hen may produce ten to twenty eggs. They are small for the size of the bird. As might be expected the chicks are also small and care should be taken to ensure that they are eating during the first few days. Live maggots are a great help, and apart from these the chicks will rear well on one of the proprietary brands of pheasant or turkey starter crumbs. It is inadvisable to mix other breeds of pheasant chicks with Elliot's, although an odd Golden Pheasant chick or two will help to encourage the Elliot's chicks to start feeding.

According to Delacour, Elliot's and Mikado Pheasants cross readily in captivity, and the hybrid cocks are fertile, while the hybrid hens are generally sterile. These hybrid cocks might be useful to cross with Mikado hens in the event of the latter species facing extinction, which seems possible in the near future. This mating should obviously be regarded as the last resort to infuse fresh blood into the Mikados.

The result of such a mating is almost indistinguishable from a pure Mikado.

Elliot's Pheasants are found in South-east China in the same area as Cabot's Tragopans. De-afforestation and the increasing human population in this area have led to a great reduction in the wild stock of Elliot's Pheasants.

I am informed by Dr. K. C. Searle of Hong Kong that some years ago consignments of Cabot's Tragopans reaching the island from China nearly always included a few Elliot's, but this is no longer the case, presumably due to their scarcity.

Therefore it is most important to maintain a large stock of this beautiful species in captivity.

* * *

ORNAMENTAL PHEASANT TRUST

ANNUAL REPORT 1961

LIST OF OFFICERS

President

JEAN DELACOUR

Vice-Presidents

THE LORD WALSHINGHAM, D.S.O.

A. A. PRESTWICH

Hon. Vice-President

PROFESSOR ALESSANDRO GHIGI

Trustees

THE RT. HON. THE VISCOUNT CHAPLIN

DAVID SETH-SMITH

PHILIP WAYRE

Hon. Treasurer

R. Q. GURNEY

Hon. Secretary

J. J. YEALLAND

Council

MISS P. BARCLAY-SMITH, M.B.E.	F. E. B. JOHNSON
MISS KAY BONNER	GORDON JOLLY, M.R.C.O.G.
DR. J. G. HARRISON, M.A., M.B.	TERRY F. JONES
DR. EDWARD HINDLE, F.R.S.	G. S. MOTTERSHEAD
A. R. JENNINGS, M.A., M.V.Sc.,	PROFESSOR CHARLES SIBLEY
M.R.C.V.S.	

REPORT OF COUNCIL, 1961

The Trust has been in operation for two years and its collection of game birds has grown to be one of the most comprehensive in Europe.

Membership continues to increase, though slowly. At the present moment it stands at nine life members, thirteen sustaining members, and 149 ordinary members, making a total of 171. Over 400 people visited the Trust this year, including Natural History Societies, Young Farmers' Clubs, schools, and other organized parties. On 5th September over forty members of the British Association visited the collection and were shown round by the Director and his staff.

The President, M. Jean Delacour visited Great Witchingham on Friday, 4th August, and once again showed his great interest in the Trust, and put forward many useful suggestions. Other well known visitors included Field Marshal Viscount Alanbrooke, Dr. Kruijt from Holland, Dr. Edward Hindle, and Mr. Aubrey Buxton.

On Saturday, 15th April, the Director gave the premiere of his film *Wind in the Reeds*, which is about the wildlife of the Norfolk Broads, at the Royal Festival Hall in aid of the Imperial Cancer Research Fund. An audience of nearly 3,000 resulted in several hundred pounds being raised for the Cancer Fund. A copy of the Ornamental Pheasant Trust's pamphlet was enclosed with every programme, and at the end of the show the Director explained the aims of the Trust and invited membership.

The Director has made a number of references to the Trust's activities in his television programmes and lectures. On 24th and 29th November there were full houses at both the Colston Hall, Bristol, and Theatre Royal, Norwich, for the showings of *Wind in the Reeds*, where a total of over 3,500 people were told of the Trust's work, and pamphlets were distributed. He has made a new film of the latest additions to the collection and of rearing methods, pens, etc.

Your Council is pleased to report that Mr. A. A. Prestwich accepted its invitation to become a Vice-President of the Trust. Mr. Terry Jones was elected to the Council in his place.

As most members are aware, the Trust has deposited a number of pairs of rarer species of pheasants with members who have the necessary facilities for breeding them. This is done in order to safeguard captive stocks in the event of disease such as fowl pest. Under this scheme Mr. F. E. B. Johnson has bred two Edwards's Pheasants (*Lophura edwardsi*) for the Trust and Mr. Newton Steel two fine pairs of Elliot's Pheasants (*Syrnaticus ellioti*).

Mr. Arthur Jennings of the School of Veterinary Medicine, Cambridge, has continued his valuable work in conducting post-mortem examinations, and Mr. W. Barrow has kindly prepared several skins for the Trust's collection. Your Council is extremely grateful to these two gentlemen for their co-operation.

During the past year, samples of egg-white from infertile eggs have been sent to Cornell University, U.S.A., where our Council member Professor Charles Sibley, is continuing his research into the taxonomic relationship of birds by means of electrophoresis of egg-white protein. The work of preparing these samples has been carried out by the Director's wife.

Over a dozen young Swinhoe's (*Lophura swinhoei*) were reared from cock birds bred from wild caught imported stock mated to home-bred hens. Twenty-four Swinhoe's were reared in all, and it is anticipated that this number will be considerably increased next year. Your Council has therefore approached the Government of Formosa with a view to sending a number of pairs of these birds back to their native land to strengthen the wild population. This will only be done if the Formosan authorities are able to give a satisfactory assurance as to the safety of the birds. It is hoped that it will be possible to place them in a National Park or other reserve.

A registration scheme is being formed to provide a record of the breeding of rare species of game birds in British collections. Mr. F. E. B. Johnson has agreed to be responsible for keeping the records and he is at present devising a suitable leg ring for marking birds. Registration forms will shortly be available and members will be sent a supply upon request.

The Director has decided to develop some 26 acres of land at Great Witchingham to provide an extension of the existing waterfowl gardens and to incorporate new enclosures for a wildlife centre. The public will be admitted upon payment and members of the Trust will always be welcome free of charge. Twelve new planted breeding pens, each measuring 60 by 20 feet, are being erected this winter within the new park, together with some of the more portable of the Trust's pens. It is felt that this will enable the public to see and enjoy a representative collection of the Trust's birds ; while at the same time leaving fifteen large breeding pens on the undisturbed, private portion of the property. Of these, ten pens each measuring 60 by 20 feet were constructed early last spring. Each contains a wooden hut, purchased by the Director from Leckford Pheasantries, and presented to the Trust. Members of the Trust will still have access to these as well as to the rearing pens which will also remain outside the boundaries of the public area. The new construction will bring the total number of large breeding pens to twenty-seven. In addition there are a further twenty pens each measuring 40 by 20 feet made of portable wooden and wire-netting sections on loan to the Trust from the Director. These pens are at present roofed with 2-inch mesh wire-netting, but it is hoped to replace this with nylon netting in the near future. This has the advantages of being easier to put up and to support, of having a very long life, of being comparatively cheap, and of causing less harm to

birds which jump up and hit it. Many 20 by 10 ft. portable pens and 10 by 6 ft. Whitlock folds are still in use.

Importations

A total of twenty-two birds has been imported during the past year, and of these seventeen are still alive in the collection.

	M.	F.		M.	F.
Vieillot's Crested Fireback . . .	—	4	Indian Button Quail . . .	—	2
Malay Peacock Pheasant . . .	2	2	Blue-legged Bustard Quail . . .	1	1
Roulroul Partridge . . .	3	1	Jungle Bush Quail . . .	1	—
Painted Spurfwl . . .	1	1	Rain Quail . . .	1	—
Grey Francolin . . .	1	1			

The Malay Peacock Pheasants (*Polyplectron bicalcuratum*), Roulroul Partridges (*Rollulus roulroul*), and Crested Firebacks (*Lophura ignita rufa*) were imported through the kindness of Dr. K. C. Searle of Hong Kong. The Painted Spurfwl (*Galloperdix lunulata*) and a number of Indian Quail were sent by Mr. R. D. Sane, one of our members in Bombay. The pair of Grey Francolin (*Francolinus afer swynnertoni*) were presented by Mr. Guthrie Hall of Southern Rhodesia. Your Council is extremely grateful to these members for their enthusiasm and kindness.

In addition some Rock Partridge (*Alectoris graeca*) eggs were received from the Chief Forest Officer in Cyprus. One chick was hatched from these and safely reared.

The following zoos have kindly quarantined birds for the Trust :—

Chester . . .	Mr. G. Mottershead
Dudley . . .	Mr. C. Grace
Paignton . . .	Mr. N. Dixon

Without their help it would have been impossible to import any birds, and your Council is extremely grateful for their co-operation.

The Collection

The breeding season has been reasonably satisfactory, and the following is a list of eggs laid and young birds reared.

	Eggs.	Hatched.	Reared.
Temminck's Tragopan . . .	21	9	7
Cabot's Tragopan . . .	3	3	3
Common Koklass . . .	12	11	5
Himalayan Monal . . .	8	1	1
Tonkinese Red Junglefowl . . .	3	0	0
Silver Pheasant . . .	18	14	10
Edwards's Pheasant . . .	3	0	0
Swinhoe's Pheasant . . .	32	31	24
Elliot's Pheasant . . .	16	7	5
Mikado Pheasant . . .	15	1	1
Reeves's Pheasant . . .	14	5	2
Golden Pheasant . . .	40	25	17
Lady Amherst's Pheasant . . .	36	1	1
Common Peafowl . . .	16	3	3
Roulroul Partridge . . .	5	0	0
	242	111	79

Two of the three young Cabot's Tragopan (*Tragopan caboti*) which were reared from birds imported via Dr. K. C. Searle last winter are still thriving. Both survivors appear to be hens. Unfortunately the third succumbed to *Pasteurella pseudotuberculosis*. It is many years since this species has been successfully reared in this country.

Seven young Common Koklass (*Purcrasia m. macrolopha*) were reared, five of these, three males and two females, are still thriving. This species has not been bred before in this country, as far as it is known.

One of the imported Roulrouls laid five eggs scattered in the pen ; these were set under a bantam, but proved infertile.

Infertility continues to be the chief problem in breeding rare pheasants, particularly where species have long been in captivity.

We were fortunate in being able to purchase five pairs of Mikado Pheasants from Leckford when their collection was disbanded. Fifteen eggs were laid by these birds but only one was fertile, this hatched and the young bird, which appears to be a hen, has been successfully reared.

It is interesting to compare the fertility of freshly imported birds with that of stock long in captivity, and therefore highly inbred. For example the fertility of both imported Cabot's Tragopan and Common Koklass (in both cases wild caught birds) was 100 per cent compared with 7 per cent in Mikado and 43 per cent in Temminck's Tragopan from many generations of captive birds. At the same time it should be borne in mind that the birds purchased from Leckford were unable to be moved, due to fowl pest restrictions, until late in February, when they joined the collection and were at once put out in large breeding pens ; even so, they may have had insufficient time in which to settle down before the breeding season.

One of the disappointments of the summer was the death of our only female Chinese Bamboo Partridge (*Bambusicola t. thoracica*). In the middle of July a man mowing the grass found her lying dead beside her nest which contained five eggs, these were too stale to hatch.

A large number of Californian Crested Quail (*Lophortyx c. californica*) and Bobwhite Quail (*Colinus virginianus*) has been reared and in addition three Chinese Painted Quail (*Excalfactoria chinensis*).

The Bornean Great Argus (*Argusianus argus grayi*) believed to be the only pair in captivity in Britain, spent the summer in a large planted pen, but on 20th July the male went into a deep moult, so there was no chance of successful breeding this season. Strangely enough the male, though in fine condition, has never yet been seen to display to his hen.

The female White Crossoptilon (*Crossoptilon c. drouyni*)—the only one of its kind in Western Europe—is doing well. But so far it has not been possible to procure a mate for her. However M. Jean Delacour has offered to send a hybrid Blue × White male from Clères, and it is thought that this is the best solution for the time being.

Deaths in the collection have not been numerous although unfortunately there have been a few losses during the year among the rarer species. The following diseases have been responsible for the majority of these :

Pasteurella Pseudotuberculosis ; Enteritis ; Aspergillosis ; Hepatitis ; Histomoniasis.

The latter, despite the fact that all birds are fed pellets or crumbs containing Entramin at the preventative level all the time. Unfortunately a female Scintillating Copper Pheasant (*Syrmaticus soemmerringi scintillans*) was the last to succumb to this disease, thus leaving the collection with three males and no females of this species. Since five young birds were reared in 1960. the foregoing shows how quickly a small captive stock can be wiped out by accident or disease. It is hoped to import more of this species from Japan.

A pair of Grouse was presented by Mr. Dudley Pinnock of Aberdeen University, and they make both a welcome and interesting exhibit.

This season a small surplus of the more common species has been sold to members. As birds become available orders are dealt with in strict rotation.

The following is a list of birds in the collection at 1st December, 1961 :—

	<i>M.</i>	<i>F.</i>	<i>Total.</i>
Satyr Tragopan (<i>Tragopan satyra</i>)	2	1	3
Temminck's Tragopan (<i>Tragopan temmincki</i>)	9	7	16
Cabot's Tragopan (<i>Tragopan caboti</i>)	1	3	4
Common Koklass (<i>Pucrasia m. macrolopha</i>)	4	3	7
Himalayan Monal (<i>Lophophorus impeyanus</i>)	1	3	4
Tonkinese Red Junglefowl (<i>Gallus g. jabouillei</i>)	1	1	2
Ceylon Junglefowl (<i>Gallus lafayettei</i>)	—	1	1
Black-breasted Kalij (<i>Lophura leucomelana lathami</i>)	2	2	4
True Silver Pheasant (<i>Lophura n. nycthemera</i>)	13	12	25
Edwards's Pheasant (<i>Lophura edwardsi</i>)	7	5	12
Swinhoe's Pheasant (<i>Lophura swinhoei</i>)	5	8	13
Lesser Bornean Crested Fireback (<i>Lophura i. ignita</i>)	—	2	2
Greater Bornean Crested Fireback (<i>Lophura ignita nobilis</i>)	1	2	3
Szechuan White Eared Pheasant (<i>Crossoptilon c. crossoptilon</i>)	—	1	1
Brown Eared Pheasant (<i>Crossoptilon mantchuricum</i>)	2	3	5
Blue Eared Pheasant (<i>Crossoptilon auritum</i>)	1	2	3
Elliot's Pheasant (<i>Syrmaticus ellioti</i>)	6	5	11
Mikado Pheasant (<i>Syrmaticus mikado</i>)	4	6	10
Scintillating Copper Pheasant (<i>Syrmaticus soemmerringi scintillans</i>)	3	—	3
Reeves's Pheasant (<i>Syrmaticus reevesi</i>)	4	8	12
Southern Caucasus Pheasant (<i>Phasianus c. colchicus</i>)	1	1	2
Kirghiz Pheasant (<i>Phasianus colchicus mongolicus</i>)	1	1	2
Golden Pheasant (<i>Chrysolophus pictus</i>)	8	12	20
Lady Amherst's Pheasant (<i>Chrysolophus amherstiae</i>)	6	5	11
Bornean Great Argus (<i>Argusianus argus grayi</i>)	1	1	2
Indian Peafowl (<i>Pavo cristatus</i>)	2	6	8
Black-shouldered Peafowl (<i>Pavo cristatus</i> var.)	1	—	1
Indo-Chinese Green Peafowl (<i>Pavo muticus imperator</i>)	1	2	3
Malay Peacock Pheasant (<i>Polyplectron bicalcaratum</i>)	2	2	4
Vieillot's Crested Fireback (<i>Lophura rufa</i>)	—	3	3
Roulroul Partridge (<i>Rollulus roulroul</i>)	2	2	4

	<i>M.</i>	<i>F.</i>	<i>Total.</i>
Chinese Francolin (<i>Francolinus p. pintadeanus</i>)	1	1	2
Chinese Bamboo Partridge (<i>Bambusicola t. thoracica</i>)	2	—	2
Formosan Bamboo Partridge (<i>Bambusicola thoracica sonorivox</i>)	—	1	1
Bornean Tree Partridge (<i>Arborophila hyperythra</i>)	2	1	3
Stone Partridge (<i>Ptilopachus petrosus</i>)	1	1	2
Himalayan Chukor (<i>Alectoris graeca chukar</i>)	2	1	3
Painted Spurfowl (<i>Galloperdix lunulata</i>)	1	—	1
Rock Partridge (<i>Alectoris graeca</i>)	1	—	1
Indian Grey Partridge (<i>Francolinus pondicerianus</i>)	—	1	1
Chinese Painted Quail (<i>Excalfactoria chinensis</i>)	3	3	6
Californian Crested Quail (<i>Lophortyx c. californica</i>)	11	11	22
Bobwhite Quail (<i>Colinus virginianus</i>)	10	10	20
Jungle Bush Quail (<i>Perdicula asiatica</i>)	1	—	1
Indian Button Quail (<i>Turnix tanki</i>)	—	2	2
Blue-legged Bustard Quail (<i>Turnix suscitator</i>)	1	1	2
Rain Quail (<i>Oturnix coromandelicus</i>)	1	—	1
	128	143	271

Number of forms in the collection, 43.

* * *

ORNAMENTAL PHEASANT TRUST—ANNUAL REPORT 1961

ORNAMENTAL PHEASANT TRUST

STATEMENT OF ACCOUNTS FROM 31ST OCTOBER, 1960, TO 31ST OCTOBER, 1961

	£	s.	d.		£	s.	d.
Balance in hand	210	1	10	Purchase of Birds	634	6	6
Donation Hon. Director	318	14	6	Airfreight and Railway	122	10	2
Donations	179	0	8	Printing	47	12	1
Ordinary and Sustaining Membership Subscriptions	184	4	0	Labour and general maintenance	150	0	0
Sales of Birds	150	17	10	Bank Charges	12	4	
				Loss on Subscriptions paid in foreign currency	2	2	
				Cheque book	4	0	
					955	7	3
				BALANCE IN HAND	87	11	7
					£1,042	18	10

THE CARE OF ORNAMENTAL PHEASANTS

By F. E. B. JOHNSON (Bletchley, Bucks., England)

It is easier to care for pheasants in captivity in these days than it has been at any time in the past. So far as feeding is concerned science has come to the aid of the pheasant breeder more, perhaps, than to any other avicultural specialist. This is entirely due to the immense amount of research that has been devoted to the poultry and turkey industry.

Turning first to the question of housing, it has been found that the following are the essential requirements to be borne in mind :—

(1) With the exception of certain subspecies of *Phasianus colchicus*, pheasants are woodland birds, and therefore require trees or shrubs in their aviaries.

(2) Most species are completely hardy and can, in fact, withstand exposure to lower temperatures than domestic poultry.

(3) Lack of shade is more harmful to most species than exposure to adverse weather.

(4) Protection from severe winds is necessary.

(5) The birds must be provided with suitable nesting sites.

(6) A few species need heat in winter, or at least protection from frost, but it should be remembered that fresh air is vital ; no bird should ever be subjected to a stuffy atmosphere.

(7) The enclosures must be made vermin-proof.

(8) Precautions must be taken to prevent the introduction of infection from outside sources.

Ideally, a pheasant aviary should be a large enclosure, as large as possible, with a roomy and dry but airy shed with facilities for dust bathing. The aviary should be well planted with shrubs, including evergreens, but should be free from decaying vegetation which might cause fungal infection, and yet it should have sufficient vegetable growth to provide insects and green food.

The sides of the aviaries should be of wire netting ; $\frac{1}{2}$ or $\frac{3}{4}$ in. mesh is best where cost is no object but I have found 1 inch mesh to be perfectly satisfactory. It is advisable to board up the walls to a height of about 1 foot all round. It is also a good plan to make sure that the wire netting extends outwards along the ground to the extent of 1 foot all round the outside of the block. This is a much quicker procedure than sinking the netting in the ground, and appears to be equally effective in keeping out vermin.

Made-up sections as used by game farmers can be bought and joined together with stakes and bolts, and this will be found to save a great deal of time and trouble and add very little to the cost. An aviary 40 feet long by 20 feet wide is of sufficient size to accommodate

a breeding pair of most species, while 20 by 10 feet is ample space for pairs of Edwards's, Swinhoe's, Amherst's, and Goldens.

Nearly all my aviaries are now roofed with 1 inch mesh nylon netting which has many advantages, but I have not used it long enough to say that there are no pitfalls. Netting of larger mesh will keep the pheasants in, of course, but in order to minimize the risk of infectious diseases it is advisable to keep out wild birds, and 1 inch mesh netting will only allow an occasional sparrow to enter.

Shrubs should be planted in the pens, and evergreens are best but most are slow growing. *Lonicera nitida* provides dense cover and is easy to grow and cheap to buy. Attractive flowering shrubs will enhance the appearance of the aviaries but take time to establish. Until the shrubs are large enough to provide effective cover, branches of fir or other evergreens can be placed in the aviary as a temporary measure.

Shelters should be provided but these need not be elaborate. The birds will nearly always roost on top of them but after a night of continuous rain it does give the pheasants a chance to get dry during the day. A small bantam house is very satisfactory.

As I have said, feeding these days is comparatively simple. All old books on pheasants state that the basic food is grain. Probably very few, if any, pheasants in their natural homes ever see any grain at all, and as most occur either in dense jungle or at high to moderate altitudes where the slopes are thickly wooded their food consists of seeds, leaves, fruit, and insects.

In captivity this diet is probably best represented by a proprietary brand of turkey "breeders" pellets given liberally at a morning feed and a small quantity of grain in the afternoon. One cannot overfeed with these properly balanced pellets except to the extent of wasting the food, although it should be remembered that stale food left on the ground will quickly decay and may cause fungal infections. Too much corn, however, although not likely to decay will soon render the birds fat and incapable of breeding. The correct amount of food to give can only be discovered by trial and error. A successful breeder of any livestock will find this out for himself by watching his stock when he is feeding.

Basically I feed all my adult pheasants as above, but Tragopans have fruit of various sorts in addition and Peacock Pheasants require a higher protein diet, supplied by the addition of mealworms and meatmeal. They also require fruit but eat very little greenfood.

Young chicks and growing poults should be fed a different ration. I find turkey or pheasant starter crumbs containing a coccidiostat and antibiotic very satisfactory for chicks up to about eight weeks of age, and then the birds should be changed gradually to turkey rearing pellets. I always use a brand containing the anti-blackhead drug Entramin.

The chicks of certain species of pheasants require live food during the first ten days or so of their lives and I have found mealworms the easiest way of providing this. They are clean, easy to obtain, and inexpensive. The young of Monals, Tragopans, Peacock Pheasants, and Elliot's Pheasants should always be provided with live food.

It should not be forgotten that flint grit is essential to all pheasants, and in addition limestone or oystershell must be provided just before and during laying.

Leaving the question of the general care of pheasants in captivity, I am tempted to think ahead and to suggest that there is a great deal more scope for the specialist pheasant breeder in the field of conservation than is at first visualized. To take the Blood Pheasants (*Ithaginis*) as an example; how many of us have seen these alive? I have not; it is quite evident from the skins that they are birds of exceptional beauty. So far as I am aware no recent attempt has been made to establish these birds in aviculture. All earlier attempts failed as they were found to be very susceptible to infection at low altitudes, but who knows what might not be done now with rapid air transport and the use of antibiotics and modern drugs. I have made several attempts to import these birds but have not yet found anyone able to get them for me.

The situation with Tragopans is a little better, but not much when it comes down to hard facts. I believe there are a number of Satyr Tragopans in America, but in England we have less than twenty, and up to this year this number only included one pair of breeding age. Temminck's were once firmly established, but the present stock is very inbred and badly needs fresh blood from China, Assam, or Burma. The Pheasant Trust has bred the gorgeous Cabot's, but there must be less than a dozen of these in captivity anywhere in the world. I do not think there are any breeding pairs of Blyth's at present. I am hoping to get some soon, but they are not even caught yet!

The Western Tragopan may even be extinct, and many other species of pheasants, including those mentioned above, must be ever decreasing in numbers owing to the continual encroachment of civilization on their mountain and jungle habitats. It will be seen, therefore, that tremendous opportunities exist for pheasant enthusiasts in the field of conservation.

In conclusion, two questions may provide further food for thought. It is believed that there are two pure strains of Amherst's Pheasants in the country, but are there any truly pure Golden's? Secondly, are there any pure "True" pheasants of the genus *Phasianus*? We know that "Mongolians", "Chinese," etc. can be obtained readily enough, but I suspect that all of them have had introductions at one time or another of the English feral blood, and are now merely breeds, bred by selection to more or less the right colour.

THE ROULROUL

(Rollulus roulroul)

By Dr. K. C. SEARLE (Hong Kong)

This, one of the most beautiful partridges in the world, is well known to aviculture although it has never been common in collections and has a reputation for being somewhat delicate.

The species is found throughout the Malaysian Sub-region extending into Thailand, some islands of the Mergui Archipelago, and the extreme south of Tenasserim. Abundant throughout most of its range it is a bird of old forests and bamboo groves, being commonly found where there have been clearings in primary jungle. It is found from sea-level to 4,000 feet. From the nature of its habitat the bird is more often heard than seen; anyone who has spent sufficient time in the jungles of Borneo or other parts of its range will have surprised family parties which scatter rapidly when alarmed. Although rarely seen and difficult of approach they are easily taken in snare lines. Smythies describes this species as "*the* partridge throughout the lowland forests" in Borneo. However, this was not my experience when collecting along the Kalabakan River in 1959. The Chestnut-breasted Tree Partridge (*Arborophila charltoni*) was heard calling everywhere and as against one Roulroul snared we took a dozen of the former. Despite the wide range from the mainland of Asia through the islands of Malaysia no sub-species are described. I have personally handled birds from Thailand, Sumatra, and Borneo and my impression was that those from Sumatra were a little larger, but without comparing a large series this cannot be considered significant.

The male is a handsome bird. Ten inches long with a small decurved black and red bill, the legs, feet, and a patch of bare skin around the eyes are bright scarlet. The long, decomposed occipital crest is dark red reminding one very much of the horse hair plumes on a Roman helmet. There are also long hair-like bristles on the forehead and these are separated from the crest proper by a white patch on the crown. The rest of the head, neck, tail, and the underparts are black. Upperparts are dark blue with a high, glossy sheen passing to green on the lower back and rump. The wings are brownish black. In the female the occipital crest is absent but the frontal bristles are present, the head is grey and the mantle, back, tail, and underparts green. The wings are bright cinnamon. Legs and feet scarlet as in the male, a smaller area of scarlet skin around the eye but the bill is entirely black.

Newly trapped birds are impossibly wild and, unless great care is taken to protect them from self-mutilation, broken scalps, foreheads, and ceres soon result. Freshly caught birds can soon be persuaded to feed if offered live food and fruit. Birds received from native trappers

and dealers are usually pitifully thin having been offered nothing but padi rice and, if lucky, millet seed. Attempts to keep this species on grain alone for any length of time are doomed to failure. Here in Hong Kong my birds are given mixed grain (wheat, peas, crushed maize, padi rice, and millet) chopped papaya, apple, and green vegetables, a high protein soft food as used for small insectivorous birds, dried flies and live grasshoppers. When housed in a mixed collection they will also take minced or chopped raw lean beef and hard-boiled egg. Highly insectivorous, I have seen birds chasing butterflies and moths in a planted flight, leaping into the air to catch the flying insects. My experience has been that properly fed, Roulrouls are not delicate and specimens that have been received in very poor condition, weak and emaciated, become unrecognizable in a few days if allowed to gorge themselves on live insects and fruit.

Despite initial wildness a little care soon renders them absurdly tame. If turned into large planted flights with plenty of low cover, the birds will, in the space of a few weeks walk around ones feet to receive live food. I clip one wing before turning out newly received birds in this manner to prevent broken heads if they become alarmed and fly against the wire. Just how tame they can become will be easily realized by those who saw the pair shown at the "National Cage Birds Exhibition" in 1956 and 1957 by Raymond Sawyer. These birds successfully reared young in a small indoor flight.

Males are savage fighters pecking their opponents around the head and eyes. If housed with a number of females a mate is selected and the rest ignored. At the time of writing I have an old male housed with seven females; he consorts entirely with one hen and the other six move around in a compact party. As a temporary expedient four or five males can be run together provided no hens are present. Great scratchers, paired cocks are very solicitous, calling the hens with a low whistle to feed where they have turned over the ground, the whole being accompanied with much rapid tail-wagging by both birds. At night the highest possible perch is selected for roosting when a characteristic attitude is assumed—bill well tucked into the chest and tail curved forward under the branch. When frightened Roulrouls run very fast in a straight line with a high stepping gait; at other times progress is slow, interrupted frequently by pauses to scratch and dig. They are quite inoffensive, completely ignoring quail, pittas, thrushes, doves, rails, or other small ground-frequenting species.

Breeding under controlled conditions has been successful on several occasions. Those of which I have knowledge were by the late Herbert Whitley at Primley, Rotterdam Zoo in 1953, and most years since (including three reared in 1961), Wassenaar, 1955 and 1956, and two successful breedings by Raymond Sawyer in 1956 and 1957. The latter seems to me a particularly commendable effort, the birds being

housed in relatively small indoor flights. An intricate domed nest was constructed by the female of this pair and after an initial failure eggs were hatched under a bantam. Newly hatched chicks are very insectivorous and Sawyer found live ant cocoons of great use during the first few days.

Anyone in possession of a well-established, tame pair of Roulrouls stands a good chance of breeding this species. A well planted flight with low thick cover, liberal supplies of live food to bring the pair into high breeding condition seem to be the important points to achieve pairing and egg production. My own choice thereafter would be a suitably small bantam and a heated coop for rearing.

REFERENCES

- APPELMAN, I. F. J. *Avicult. Mag.*, vol. 60, p. 5.
Avicult. Mag. Vol. 61, p. 319.
 DELACOUR, J. (1947). *Birds of Malaysia*, p. 61.
 BEMMEL, A. C. V. VAN. Personal communication.
 GERRITS, H. A. Personal communication.
 SMYTHIES, B. E. (1953). *The Birds of Burma* (2nd Edit.), p. 445.
 — (1957). *The Sarawak Museum Journal*, vol. vii, p. 591.
 — (1960). *The Birds of Borneo*, p. 168.
 SAWYER, R. C. J. Personal communication.

* * *

THE AMERICAN QUAILS

(Tribe Odontophorini)

By J. DELACOUR (Clères, France)

(concluded from Vol. 67, No. 1, p. 18)

III. BOBWHITE QUAILS (*Colinus*)

The quails of this genus are excellent game birds, and the North American species, which extends to Mexico, is particularly popular with sportsmen. They are rather smaller and have a shorter crest than the Western quails. They comprise one genus and four species, with a large number of subspecies, particularly in the southern parts of North America, and they extend to northern South America in Colombia, Venezuela, the Guianas, and the adjacent border of Brazil ; but they are not found in the west of the United States.

Bobwhites are birds of open and cultivated countries wherever high weeds and brush exist. They occupy also open woodlands and pastures, but are more abundant around fields where they find better food. Out of the breeding season they live in coveys. They roost at night on the ground, in grass or weeds. They eat seeds, with green food, berries, a few insects, and require water to drink.

NORTHERN BOBWHITES (*Colinus virginianus*)

These quails are famous in the Eastern, Mid Western, and Southern States, as well as in Cuba and Mexico, and they are probably the best game bird of this vast area. They have been introduced successfully into several western States and West Indian islands ; also in Europe, where, so far, they have failed to be satisfactorily established. They vary tremendously in colour from north to south, and there are nearly twenty recognizable subspecies.

In the typical northern race, which occupies practically the whole of the United States, the male has a black crest, broad white eyebrows and throat, surrounded by dark brown and black bands, mottled chestnut crown and upper parts, a chestnut breast-band and sides, white underparts marked with black and brown ; the female has buffy yellow eyebrows and throat and pale grey underparts. There is a reddish (erythristic) variety which has been fixed by selection, in which a rich chestnut extends to all the underparts. Florida birds (*floridanus*) are darker and more barred underneath. The Cuban race (*cubanensis*) has the underparts chestnut, marked with black and white, but it varies a great deal, probably because of the introduction of northern birds. Those from Texas and New Mexico (*texanus*) are intermediate. There are several races in Mexico with more or less plain red underparts and a black breast, and in the western parts of the country, others with black throat and pure chestnut underparts, the best known of which, *ridgwayi*, inhabiting southern Arizona and northern Sonora and almost extinct, still is reared in captivity in the United States.

All these Bobwhites live well in aviaries and can be reared easily.

The BLACK-THROATED BOBWHITE (*C. nigrogularis*) is found in Yucatan and the lowlands of Guatemala (Peten) and Honduras. It has similar habits and it resembles the above species, but the male has a black throat and the underparts are white laced with black. They live in the same sort of country and possess similar habits.

The CENTRAL AMERICAN BOBWHITES (*C. leucopogon*) are greyer, with white eyebrows and throat, and they have the underparts boldly spotted with creamy white. The race *hypoleucus*, from Salvador, is white underneath, while other races have darker brown underparts, in Nicaragua and Costa Rica (*leylandi*, *dickeyi*). They have seldom been kept in captivity, but are not difficult to rear.

The CRESTED BOBWHITES (*C. cristatus*) range from Panama to northern South America. They have a longer, creamy or brownish-white crest and a whitish crown ; resembling the other species they are more heavily spotted underneath. The northernmost races show a reddish brown throat and the ground colour underneath is chestnut ; the females are lighter. Other races have a white throat

and are paler. The Guiana race (*sonninii*) is pale and greyish, but it has a light chestnut throat. Various races have been kept and reared in captivity, particularly *sonninii*, *decoratus*, *leucotis*, and *littoralis* (Colombia) ; *cristatus* (Venezuela).

IV. FOREST QUAILS (*Odontophorus*)

The large quails of this genus inhabit the tropical rain forests and their range extends from southern Mexico to southern Brazil, northern Argentine, Paraguay, Bolivia, and Peru. They live on the ground in small parties or in pairs, in the shade. They, however, fly rapidly when disturbed. They have a loud call of six notes (in the species *guttatus*) often repeated. They scratch loose ground littered with dead leaves for small bulbs, seeds, roots, and insects. They are not easy to detect.

Forest Quails are rather large, the size of partridges, and have a very strong, thick bill and large, powerful feet. The head is adorned with a broad, short nuchal crest, often invisible. The body is heavy and the tail short. They live well in captivity but seldom, if ever, breed. In aviaries, they are apt to pick out the bark of trees and shrubs, but do no harm to other birds. They are seldom available, as they seem difficult to capture and do not prove very popular because of their heavy shape and dark colours. They are, however, quite handsome in their elegant tones and markings. Both sexes are alike in most cases. This genus is a large one, with some fifteen species, some of them having a number of geographical races.

GUIANA FOREST QUAIL (*O. gujanensis*)

This species ranges from Costa Rica to the Amazon River, Peru, and Bolivia, with no less than nine geographical subspecies. It has a dark chestnut crest ; mottled brown upperparts with a reddish rump ; wings brown spotted and barred buff ; chin, cheeks more or less barred and spotted ; throat chestnut ; underparts pale reddish brown, bare skin round the eyes bright red. It is imported from time to time.

CAPUEIRA FOREST QUAIL (*O. capueira*)

Inhabits eastern Brazil, differing from *gujanensis* only by its grey underparts. Has been imported occasionally.

RED-HEADED FOREST QUAIL (*O. erythrops*)

From Central America and W. Ecuador, they have a reddish chestnut crown, dark brown underparts, and black throat and chestnut underparts.

O. hyperhythrus from Colombia ; *O. speciosus* from E. Ecuador and E. Peru, are very similar and probably conspecific ; the former has blackish crown and underparts, the throat and upper breast alone being chestnut ; the back is lighter throughout. *O. melanonotus*, from

subtropical W. Ecuador, has dull black crown and upperparts. *O. loricatus* (Bolivia); *O. parambae* (Ecuador), and *O. strophium* (Colombia) are closely related; all have black throats and upper breast, with a large white patch in the middle; their crown and underparts vary from chestnut to black or blackish brown.

O. atrifrons (Colombia); *O. leucolaemus* (Costa Rica and Panama); *O. columbianus* (N. Venezuela), have a white throat and white markings underneath; *leucolaemus* is almost black, the others lighter.

O. soderstromi (Ecuador) is dark, the head and throat black, the underparts chestnut.

SPOTTED FOREST QUAILS

The last three species of *Odontophorus* have the underparts spotted with white; *O. bollivanus* (Peru and Bolivia) possesses a dark chestnut head, the upperparts brown with large black spots and the underparts chestnut with arrow-shaped white markings bordered with black; *O. stellatus* (E. Ecuador and E. Peru) is lighter, with a grey throat and light chestnut underparts with small white spots on the breast; *O. guttatus* (S. Mexico) is dark brown all over with a black throat flecked with white lines, and white spots on the underparts.

V. SINGING QUAILS (*Dactylortyx*)

The Singing Quails (*Dactylortyx thoracicus*), from Mexico and Central America, are medium sized, with a weak bill, very large feet, and a short tail. They are brown, mottled and streaked darker and lighter; crown and cheeks brown; eyebrows and throat tawny cinnamon. They live in high and dense forests or humid canyons, being found at low level in Yucatan only, where a paler race (*sharppei*) occurs. They seldom fly, running and hiding when disturbed, so that they are difficult to procure. They have quite a song, more melodious and complicated than in any other game bird. They dig their food with their powerful feet in the forest litters.

VI. LARGE-BILLED QUAILS (*Rhynchortyx*)

The small *Rhynchortyx cinctus*, from Central America, Panama, W. Colombia, and N.W. Ecuador, have a very large and heavy bill. They resemble *Odontophorus* in the colour of their upperparts. The males have cinnamon eyebrows and cheeks, and grey breasts and a cinnamon abdomen, turning white on the vent; the female has spotted black and white eyebrows and cheeks, a brown breast, and mottled black and white underparts. It is a forest bird.

VII. MASSENA'S QUAILS (*Cyrtonyx*)

MASSENA'S QUAILS (*Cyrtonyx montezumae*) are perhaps the most attractive and prettiest birds of the tribe. They are rather small and

round in shape, with a thick, short bill and a very short tail. The males have a remarkable pattern of black and white lines and patches on the head and throat, the sides of the breast and abdomen boldly spotted with white, the middle being a rich chestnut ; a short, thick, recumbent, light brown crest ; the upperparts barred light and dark brown, with large dark spots and white or cinnamon streaks. The females are like the males above but are streaked brown and buff below, the face and throat buff, and the underparts greyish cinnamon, spotted or streaked with black.

The northern races (*mearnsi*, from S. Arizona, New Mexico, Texas, and northern Mexico ; *montezumae*, from central Mexico) have the background colour of the sides black ; the northern race is a little darker. The form *sallei*, from W. Mexico (Guerrero) differs in having the sides of the breast grey spotted white, and those of the abdomen grey spotted with golden cinnamon ; the abdomen is a lighter chestnut.

The OCELLATED QUAIL (*C. ocellatus*) from S. Mexico, Guatemala, Honduras, and N. Nicaragua, is similar, but differs in having much less white marking on the head, more distinctly spotted upperparts with large chestnut streaks, and grey breast sides ocellated with buff, the dots changing to chestnut along the abdomen ; the upper breast is pale cinnamon, turning to chestnut lower below. The female is much as in *montezumae*, rather more clearly spotted underneath.

Massena's Quails are mountain birds, not found below 5,000 feet. They occur in small coveys of five to ten birds in the temperate pine-oak upland, but never in great numbers. They are entirely ground dwellers and only take short, swift flights when almost trod on. They lay white eggs, contrary to most other American Quails. The cock is an excellent father and helps rear the brood with great care. They feed mostly on small bulbs. Grazing cattle have done a lot of harm to these beautiful quails, which are becoming scarce in many areas ; they live and breed well in captivity, but they require a good deal of care because of their very quiet and shy disposition.

*

*

*

TRAGOPANS, MIRACULOUS BIRDS

By R. R. P. VAN DER MARK (Woerden, Holland)

Tragopans, or Horned Pheasants, form a compact genus of five distinct species, living along the Himalayan Range, from Kashmir in the west, through Burma to Central China, where they are found on the higher mountains in the area bounded by Shensi on the north, Fokien on the east, Kwangsi and Yunnan, extending south through the latter provinces into Northern Tonkin.

Tragopans are mountain birds, living at altitudes from 3,000 to 12,000 feet, according to localities and seasons, in chilly and often damp forests; they feed mostly on buds and leaves, but they also eat berries, seeds, and insects.

Jamrach reports that he landed about 1,200 Tragopans in England between 1864 and 1882 and between 1920 and 1940 several dozens were sent each year from Calcutta, where Afghans and other hill natives bring them every winter. Unfortunately losses were very high because of improper crating and feeding, and of contamination through domestic fowls.

The first world war wiped out most of the European stock, as did the second world war and even now all species still are very rare and high in price, as new importations are scarce, forbidden, or impossible to deliver. Happily, in Holland, some years ago a few pairs of Temminck's and Satyr Tragopans were obtainable. Having learned how to house and maintain them in good health from Mr. Terry Jones of Leckford (who was a very successful breeder of Temminck's Tragopans through the years, sending birds of this species all over the world) I started this side line of my waterfowl collection by breeding with a pair of both species.

Active and robust birds, Tragopans need lots of room, inside and especially outside, where a generous pen, well planted with shrubs, trees, flowers, and grass, is at their disposition.

Thickly feathered, seeking the shade during hot parts of the day, they come to life in the early morning and afternoon, walking the branches, flying from limb to limb, or along the ground in long, noisy observation hops, to see into the adjoining enclosures. Very gentle, never nervous, and of infinite variety and mood, the cocks soon become tame with proffered titbit, flying to the shoulder, where they perch, breasts awash with crimson fire, each feather tipped with a shining drop of melted pearl. . . . their black eyes sparkle with satanic fun, while the quiet hens, in modest brown, slip from the sheltering grasses and feed out of my hand! After their downy phase, young cocks of four months can be distinguished from the young hens, by the black bar on the tail-feathers and the orange-red feathers on the throat, coming out



[van der Mark]

MALE SATYR TRAGOPAN IN DISPLAY

Copyright]



Copyright]

[van der Mark

SATYR TRAGOPAN CHICKS
Three weeks old.



Copyright]

[van der Mark

SATYR TRAGOPAN
Three months old.

[To face p. 21

slowly here and there. Young cocks stand higher, look more forward than the gentle young hens with their smaller faces. The cocks assume their full adult plumage in the second year.

As my colleague breeder Dayton O. Hyde in the U.S.A. wrote the other day, much has been written of the Tragopan display, wherein the male, in a jerking, spasmodic dance, pumps a rush of blood into its distending wattle, which aprons over its breast like some strange, gaudy coat of arms, a heraldic blue and red, while blue horns rise like a miracle from its crown, as the photo taken in my aviary shows. The whole display is over as suddenly as it started and the vision is as hard to recapture as a passing dream; it is seen even in autumn, especially in the early morning or evening, when the sun is sinking.

Sometimes Tragopans nest on the ground, but they prefer to nest in trees or shrubs. A basket, high on the wall, gave me the best results the three years I bred Tragopans, though sometimes an egg was laid in the open aviary; so you must look after them well in April, when each hen, at intervals of four to ten days, lays a total of ca. eight eggs, buff-coloured, irregularly dotted and blotched with reddish brown. Sometimes a year-old hen will lay, but in general hens of two years and more produce good, fertile eggs which are exceptionally brooded by the hen, but mostly by a foster-mother, such as Sussex and other Bantams. The rufous brown, pale buff, and dark rufous chicks hatch after ca. twenty-eight days.

In contradiction to the statement printed on page 61 of *The Pheasants of the World*, by J. Delacour, all my Tragopan chicks ate the first day of their life, getting a small quantity of chopped stinging nettle, dandelion, milfoil, and some spoonfuls of pheasant rearing feed, including Enheptin against blackhead. Clear, not too cold water stands at their disposal.

Tragopan chicks need a lot of heat during the months of their slow growth and I think bad breeding results of several possessors of these beautiful birds are due to this. So give the chicks as much extra heat as you can, especially during the rainy cold days in our country, by an extra heater or central heating in the aviary, as I can do, warming up the temperature to 27°–30° C. during the day. In this temperature the chicks will leave the Bantam, looking for food and water, playing in the sand and having a good appetite!

No seeds, no starchy food, as the liver and the pancreas are not ready for them and no hard coagulated proteins such as boiled eggs are necessary, they are even forbidden, as Madame Malisoux, one of the older successful breeders of Tragopans writes. Wheat, finely broken maize, crushed hemp, shelled oats, and later on all other seeds, if not too big, can be given to the chicks, and fresh fruit and berries may be added, and given to the parents the whole year round. Tragopans can and *must* eat a fair quantity of green food daily; salad, endive, a clump of stinging

nettle, as long as this weed is obtainable, grass, together with some Universal feed and a handful of wheat in the evening, making them not too fat.

Personally I like the deep crimson-red of the male Satyr Tragopan most, but he lacks the blue "face" of the Temminck's. Both species have a charming gentleness, become confident and tame and for that reason, and also because of their extreme beauty, Tragopans will remain favourites with aviculturists all over the world, as I learn from my export orders. The more yellow-orange coloured Blyth's Tragopan is extremely rare now and having a female I am urgently looking for a male. A few months have to pass, then the wah-oo-h-wah love call of the cocks will be heard again, the miraculous sound of a beautiful creation of Nature.

* * *

MR. AND MRS. MILLIGAN'S METHODS OF KEEPING PHEASANTS

By TERRY JONES (Stockbridge, Hants., England)

The Director of the Pheasant Trust suggested I should write an article on the Peacock Pheasants, but to what has been written about them in the Magazine, the O.P.S. Journal, and Delacour's Monograph, I could add perhaps another sentence. Instead, I thought I would like to pay tribute to two people who have done a great deal for present-day pheasant stocks both in Europe and America, and to say something of their methods.

Mr. Milligan came to Leckford to take charge of the aviary collection in 1936 or 1937. Before coming here he had worked at Clères for M. Delacour and before that for Mme Lécailier who had a great breeding collection of aviary birds of many species. During the war Mrs. Milligan joined him, and between them they kept a nucleus of the collection going, he working all the war years without a holiday and I believe without even a complete day off. It was owing to their tireless energy and great skill that over 400 Temminck's Tragopans and over 200 Mikado were sent out from Leckford, as well as good numbers of several other species such as Edwards's, Elliot's, and Swinhoe's, and Chinquis Peacock Pheasants. He also reared before the war about a dozen Palawan Peacocks and the first Ocellated Turkeys bred in this country. Besides pheasants, he was very successful in breeding such diverse species as Emus, New Zealand Golden-fronted Parrakeets, Blue Robins, and Plumed Ground-doves.

They continued to work together till they retired in the spring of last year, doing a steady seventy or more hours a week from the latter part of May to the end of July each year. Any labour saving device

was carefully tested, not as to how much labour it saved, but as to whether jobs done with its aid had the same meticulous results. They destroyed the pleasure I might have got from seeing many other collections because the standards of hygiene I took for granted are in fact far from universal ! And successful bird keeping is not so much a matter of secret knowledge as of the ability to observe. Now for some of their methods.

Pheasants spend a great deal of their time running up and down their fences. If a little trench is taken out right round the edge of the aviary or pen and is then refilled with coarse gravel, this will stop the birds making muddy tracks, and it can easily be taken out now and again and renewed as the bulk of the daytime droppings are shed on it.

Perches should be regularly renewed and/or washed with disinfectant. Pheasants take up a lot of dirt on their feet and they also like wiping their beaks and eyes on the perches. *Never* feed pheasants on the ground, even with grain, most pheasant diseases are soil borne, always feed them in tins or dishes placed in their shelters where the food is out of the weather. I am very sensitive to dirty or badly placed water pots ! The Milligans scrubbed or had scrubbed every food and water pot first thing every morning. A churn brush fits perfectly between the spout stays of an old fashioned watering can and woe betide any lad who went off with the can and without the churn brush. The water dish was kept outside in the shade of a bush, and twenty odd years after they were bought from Woolworths, they are as bright and clean inside and outside as the day they were bought.

If the pheasants regularly roost on the same perch, put a piece of slate or asbestos underneath so the droppings can be cleared away each day. Keep the grass in the pens short with a rotoscythe and rake up and clear away the cuttings. Do not overfeed, pick up any uneaten food in the evening. Cock pheasants of many species often scalp their hens. Have one or two cages like rabbit hutches ready to house casualties or sick birds ; a piece of light cloth can be hung over the front to give the bird a sense of privacy without shutting out the light. If a cock has attacked his hen, one can generally get her before the blood has dried. Roll the hen, with her legs behind her under her tail, quite tightly in a cloth or sack, she then cannot move. Very gently bathe her scalp with a piece of cotton wool and with warm water to remove any dirt, blood, etc. Then very gently with a needle and fine thread pull together the various bits of skin, knotting each stitch separately. Dab the finished job freely with a piece of cotton wool soaked in iodine, release the hen gently into her cage. Provided one has found her before the wound has hardened, it almost always heals and leaves no trace. Sultanas are a good titbit for her. But as a precautionary move, place fans of brushwood in all corners of the aviary and shelter so the hen has plenty of spots to dive into. If the

cock is known to be spiteful, clip his wing and leave the hen her powers of flight and, if you can, give him several hens so he can use up his energies chasing first one and then another till he tires first.

If you hatch or rear with bantams, keep them clean ; chicken fleas thrive on pheasants. Every nest is cleaned out every week and the clean hay freely sprinkled with louse powder. We also have one of those bellows you fill with louse powder. When you take a broody from the hen house, blast her gently with it under her feathers from head to tail. Be stricter about the chicks' hygiene. If you rear out of doors, use fresh ground to which neither adult pheasants, poultry, nor any gallinaceous birds have had access. Move daily and keep handy one of the turkey preparations for dealing with blackhead as the disease strikes suddenly, Swinhoe's being particularly subject.

There is nothing new in any of this advice, but the uniqueness of the Leckford aviaries under the Milligans' care was that all sixty odd of them always looked as though they were ready for a royal inspection, and that is why I think the Milligans' regime must have been very nearly unique.

* * *

THE PAINTED QUAIL

By J. J. YEALLAND (London, England)

According to *Check-list of Birds of the World* (Peters, vol. ii, 1934), nine races make up the species *Excalfactoria chinensis* and the range extends over a large part of south-eastern Asia and as far southward as eastern Australia.

The races and their distribution are :—

<i>E. c. chinensis</i>	India (excepting north-western parts) to south-eastern China and Formosa, southward to Ceylon, the Malay Peninsula, and Indo-China ;
<i>E. c. trinkutensis</i>	Nicobar Islands ;
<i>E. c. palmeri</i>	Sumatra, Java, Borneo ;
<i>E. c. lineata</i>	Philippine Islands ;
<i>E. c. lineatula</i>	Lombok, Sumba, Flores, Timor ;
<i>E. c. minima</i>	Celebes ;
<i>E. c. lepida</i>	Bismarck Archipelago and eastern New Guinea ;
<i>E. c. australis</i>	Eastern Australia ;
<i>E. c. colletti</i>	Northern Australia.

By all accounts it is a bird of swampy grasslands, areas of abandoned cultivation and may sometimes be found in the stubble of reaped rice fields ; sometimes about roadside verges.

It appears to be monogamous and the nest, a depression in the ground under a tuft of grass, is thinly lined with grass stems. The clutch is said to number four to six, though more have been recorded among captive birds, and the eggs olive-brown speckled with reddish-brown or, according to Swinhoe, uniform olive-brown.

The food consists of the seeds of grasses and other small plants together with insect life.

The bird is generally known in England as the Chinese Painted Quail and it would, of course, have been the nominate race that was so often imported and still is to some extent. In Australia, King Quail, Chestnut-bellied, Least, Dwarf, and Swamp Quail are the names given.

The first recorded breeding in this country took place in 1898 when Meade-Waldo succeeded and was awarded the Avicultural Society's medal. His account appeared in the Magazine for that year and parts of it are quoted. "The cock bird is a very old one, and has wintered out for several years (including the bitter winter of 1895), in the East Riding of Yorkshire. The hen was kindly presented to me this spring When placed together, the little birds paired at once : the cock holding any little tit-bit in his beak, with his head held on one side, uttering a low crooning sound until the hen ran up and took it from him.

A nest was scratched in the turf, and the first egg laid on 12th June ; twenty-one eggs were laid by 3rd July, on which day the hen commenced to sit. As the number of eggs seemed so disproportionate to the size of the bird, I removed ten, leaving eleven in the nest. The hen made up the nest by drawing in grass stems and the like, but no feathers were added The hen sat exceedingly well, the cock occasionally sitting by her side, but never on the eggs.

On 23rd July the hen came off with seven young ones, leaving one dead in the nest. These little birds were most marvellously active and independent, being able to run quite as fast as the parents on the day of hatching. They were, of course, very small indeed They were dark chocolate in colour, with two broad dull yellow lines down the back, and three yellow stripes on the head. They fed principally on ants' eggs—part of an ants' nest being supplied twice a day ; they also ate the ants themselves. From the first, however, they would eat mawseed, also the seeds of various weeds. Their growth was most wonderfully rapid, as will be seen by the following dates :—

Hatched on 23rd July ; 5th August, full fledged, able to fly well ; 13th August, the two young cocks easily distinguishable from the hens ; 20th August, full grown and almost in full plumage ; 27th August, young cocks in full plumage, indistinguishable from the parent, and *crowing and calling the hens to feed*. . . . at five weeks old they were apparently adult.

A prettier sight than this little family are now, can hardly be

imagined. To escape the burning sun of the last few weeks they have made little runs through the grass of their lawn, like those made by colonies of field voles. They have little seats under tufts of grass, and in looking at the grass nothing whatever is visible. Suddenly a little head pokes up through the grass and crows; then another and another peer out in different places, and answer; then they all settle down again

Occasionally two sit in the same little form, but usually only one. I forgot to describe the eggs, which were yellowish stone colour, covered with small spots and dots of very dark brown."

The Painted Quail has been bred on a number of occasions since then, of course. The chicks in their early days are easily able to walk through $\frac{1}{2}$ in. mesh wire netting; also they are readily eaten by the larger insectivorous birds.

The soil of the aviary containing Painted Quail needs to be well drained, and a well lighted and ventilated, yet draught-proof shelter is necessary with suitable cover (clumps of long grass) in two of the corners where the birds may roost in comfort and perhaps nest during the summer. Some grass in the outer part of the aviary would provide a suitable habitat.

A variety of small seeds such as millet mixed with the finely broken grains (wheat, groats, maize, etc.) that may still sometimes be used for the feeding of domestic chicks would be a suitable food, with some insectile mixture and some green food such as chickweed, clumps of seeding annual meadow grass, shepherd's purse, etc. added. The "crumbs" used for the feeding of domestic chicks would be a balanced diet, but it might be necessary to condition the birds to eating it by mixing in some of the food to which they have been accustomed. Needless to say, fresh ant cocoons are a favourite food, and especially valuable in the rearing of young. Fine grit is essential and, of course, a shallow dish of clean water.

*

*

*

BREEDING THE BLACK-BELLIED FIREFINCH

(Lagonosticta rara)

By Sir RICHARD COTTERELL, Bt. (Hereford, England)

Description (Adult male). Upper-parts, breast, and sides of the body pinkish crimson, brighter on the upper tail-coverts. The wings brown—lesser coverts tipped with crimson. Tail full and black with outer edges crimson. Middle of belly and under tail-coverts black. Flanks black tipped with crimson; thighs black. Eye black. Bill, upper mandible black, lower horn coloured. Legs dark brown.

The adult female has the head grey-brown, the mantle, back, and scapulars washed vinous, tail-coverts brighter. Wings brown and tail black. In front of the eye a conspicuous spot of crimson. Chin and throat greyish-brown merging into buffish underparts, the breast and sides of the body washed vinous. Bill similar to male.

Range and distribution. Northern Nigeria to Northern Uganda. A high-grass-country bird. Not much is known of its nesting habits.

I obtained a pair of these birds (the first I had ever seen), at the end of July, 1960. They were turned out almost immediately into a garden aviary by themselves. Though very wild, they went to nest almost at once. This nest was built in some larch branches inside the shelter. It was made of grass, spherical in shape, with a hole in the side and lined with feathers. Nothing came of this nest, the young being found dead when about four days old.

They made a second effort on the ground outside in a patch of rough grass. This also came to nothing, as I did not know it was there—and shut them up in the shelter at night, as it was late on in the season.

So ended 1960.

They were caught up in the late autumn and spent the winter months with a mixed collection of other Waxbills in an adjoining bigger aviary, of which the shelter temperature was thermostatically controlled at not below 55° F. They were so wild that I very nearly got rid of them in the spring, but decided that I would give them another chance.

On 20th May they were again transferred into an aviary by themselves, they were in heavy moult at the time. This time I arranged that the ground in the outside flight should consist of some short grass, some clumps of long grass, and some bare ground.

On 27th July, I returned home after a few days away, and only one bird was visible at a time. Therefore it was obvious that they were sitting on a nest in one of the patches of rough grass. Both birds incubated alternately. But, in spite of watching very carefully, I never saw them change over. Nor for a long time could I discover in which patch of grass the nest was.

8th August, both birds were out together and feeding voraciously on meadow-ant cocoons, and becoming considerably less timid.

On 21st August four young fledged ; they appeared very immature and helpless, and wild as hawks. They were much smaller than the parents, greyish-brown round the head and bib, the remainder mouse brown, with a very short black tail, upper tail-coverts rusty red. A conspicuous white nodule either side at the base of their little black bills. They progressed well, and by 5th September had started to moult.

I was away for the last week in August, and on my return on 3rd September (thirteen days after the first brood had fledged), the old birds were sitting again. I never did find this nest, but on 1st October, three young fledged. This was quite an achievement on the part of the old birds, as meadow-ant cocoons were no longer available. So apart from what insects they found for themselves, they had only mealworms on which to rear the brood.

I removed the first brood from the aviary a week before the second brood fledged. They have now completed their moult, and I cannot see any difference between them and an adult female—even to the crimson spot in front of the eye, so either they are four young females or else that is the immature plumage—I do not know.

The second brood now (14th October), do not appear as vigorous as the first—this may be due to lack of insect food on which to rear them. But we shall see.

Points of interest as regards this bird from a very limited experience :

(1) They appear to be by nature very timid, also very terrestrial in their habits, in that they often hide on the ground away from any intruder.

(2) I have never heard the male sing—though their call note—Chew-chew Chew, Chew-chew is continuous especially when alarmed.

(3) Although excellent parents they are very secretive about their nesting activities. Despite the fact that I watched very carefully I saw the cock approach the nest only once, and that was with a feather for nest lining, and I had to hide myself a long distance away to get that view. Incubation and feeding of the young is by both birds. They appear to have no set times for incubation. Incubation period fourteen days, and about eighteen days as nestlings.

(4) As regards food, they lived on Pannicum Millet and Spray Millet. A little White Millet was also taken. They would not touch Canary seed. They did not appear to take any particular interest in live insects except when they were rearing young, when their appetite was insatiable. Fresh meadow-ant cocoons were their favourite, though they would not touch the ants themselves ;

except the few flying ones. They were wasteful mealworm eaters in that they ate only the head and a very small portion of the body—not even like the Dufresne's Waxbills who industriously squeeze them out like a tube of toothpaste! They had an allowance of about a dozen three times a day when rearing young.

I think perhaps the secret of breeding these and similar birds is to give them an aviary of their own, so that *all* the natural insect life is available for one pair only, to rear their young.

The thing that amazes me from my limited experience of all the Estreldinae that I have bred, is the speed with which they go to nest again for a second or third time, which appears to be about a week to nine days after the previous brood have fledged, and still need feeding.

Do they do this under natural conditions? Or is it an attempt to "go while the going is good" in our very uncertain climate?

REFERENCE

BANNERMAN, D., *Birds of Tropical West Africa*, Vol. VII.

ADDENDUM, 29TH DECEMBER, 1961

I can now say that the first brood of young ones were, in fact, all hens. The second brood began to moult into their adult plumage three weeks after fledging, and have turned out to be two cocks and one hen. Their moult has taken very much longer than that of the first brood, in fact they have not completely finished moulting yet. This is probably due to the cold weather.

They are all looking well at the moment, although there is 14 degrees of frost. The shelter which they are in is electrically heated to about 50° F.

* * *

As described above, Sir Richard Cotterell, Bt., has bred the Black-bellied Firefinch (*Lagonosticta rara*). It is believed that this may be a first success.

Any member or reader knowing of a previous breeding of this species in Great Britain or Northern Ireland is requested to communicate at once with the Hon. Secretary.

* * *

A SILVERBILL $\times$ BENGALESE FINCH HYBRID

By C. J. O. HARRISON (Tooting, London, England)

In an earlier volume of the AVICULTURAL MAGAZINE (Vol. 64, p. 51-3), Dr. Erica Eisner has described hybrids of the Bengalese Finch (*Lonchura striata*) and the African Silverbill (*Euodice cantans*). She suggests that in such hybrids the small components of appearance and behaviour act as genetic units. Since additional information is needed on this aspect of hybridism I have brought together my notes on a similar hybrid which I had.

This bird was a hybrid between a cock African Silverbill and a hen fawn-and-white Bengalese. I had it for some months and, after its death, skinned it and retained it as a study specimen. I have compared it with museum skins of both parent species, in the case of the Bengalese comparing it with both the domesticated birds and the wild Sharptailed Finch, from which it is thought to be derived.

The bill of the hybrid has the shape of a Sharptail bill and also the dark upper, and paler lower mandible. The feathers of the forehead and crown have dark centres and paler edges like those of the Silverbill. There is a brown patch just under the bill on a paler throat. The mantle and wing-coverts are the same tint of brown as a Sharptail's but there are no pale streaks and the feathers show the fine transverse barring typical of the Silverbill. The flight feathers are blackish brown. The tail is black with elongated central tail-feathers. The breast and flank feathers are not typical of either parent. They are very pale buff with fine brown transverse bars that tend to slant towards the central rachis. Many Silverbills show faint barring on these feathers, but this tends to follow the curve of the feather tip. The belly and under tail-coverts are pale buff like those of the Silverbill. The rump, which it was not possible to preserve had a mixture of black and white feathers in haphazard distribution. These present a problem, suggesting either an inheritance of some of the white of the Bengalese hen, or else a hidden potential for a white rump such as is found in the Indian Silverbill (*Euodice malabarica*). The legs and feet are pale horn.

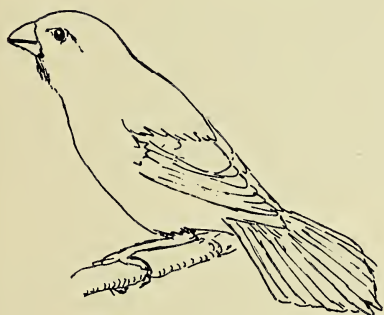
The bird was a cock and was paired to another fawn-and-white Bengalese hen. The contact note of the hybrid differed from that of either parent. I noted the contact call of the Bengalese as a dry "tritt", and that of the African Silverbill as a thin-shrill "psit". The call of the hybrid was a low-pitched, nasal "kent". The excitement note I recorded as a single sharp note lower in pitch than that of the Bengalese. High-intensity excitement was shown by a crouching posture accompanied by a vigorous flicking of the tail. At either end of the movement the tail was cocked up to one side at a sharp angle but during the movement it swung down to the horizontal and up again,

the tip following a U-shaped track. In general the excitement posture resembled that of the Bengalese rather than the Silverbill. In a low-intensity excitement posture the tail was swung to one side only and spread a little, a movement found in the Silverbill.

Song was performed in a slope posture like that of the Silverbill, and also resembled that species in that the feathers of the throat were slightly raised and the remainder of the plumage was not fluffed at all. It did, however, have one component of the Bengalese song-posture in that the tail was spread, although it was not raised, as is usual in the latter species (Fig. 1).

FIG. 2

FIG. 1



Dr. Eisner considers that the song is learnt. If so then this bird had learnt the song of its father. Listening carefully I came to the conclusion that it was singing a Silverbill's song. But the song was far louder than that of either parent species and could be heard throughout a large house when the bird sang in an upper room at one end of it. The song was quite extraordinary in that it appeared to be a slow version of the Silverbill's song, the notes being quite distinct and not the usual hurried jumble. I greatly regret not having made more careful note of it and not being able to record it. It was frequently repeated and seemed to show no variation.

The hen Bengalese began to build a nest. The hybrid was seen mandibulating grass-blades, running them through his bill. On one occasion he finally held a piece by its tip and displayed to the hen. His body was drawn up almost vertically on the perch, with the head level, and the belly feathers very slightly fluffed, making him look a little pot-bellied. The tail was closed and hung straight down. In this posture he bobbed up and down and was heard to utter two notes which sounded like the commencement of song (Fig. 2). This type of display is pure Silverbill.

Copulation was seen once, the hen soliciting by crouching with quivering tail. The cock sang a loud, rapid version of the song before mounting. Immediately afterwards the hen reacted aggressively towards him. He was seen to loop material under the foot and to carry it into the nest-box, but seemed at a loss as to what to do with it, and was seen to pull material out of the box, mandibulate it, and then drop it. Most of the building was done by the Bengalese hen. Eggs were laid but the death of the hybrid soon after prevented any attempt to hatch them.

The two birds had been kept in a large cage 6 by $3\frac{1}{2}$ by 2 feet. During the latter period I partitioned off half of this and put in a pair of African Silverbills, separated by a single piece of wire-netting. The hybrid showed a frantic interest in these birds and completely neglected the Bengalese hen for much of the time.

The only primary difference between my hybrid and those of Dr. Eisner would appear to be in the sex of the parent species. But there would appear to be differences of plumage and behaviour in the birds themselves. Dr. Eisner suggests that the separate components of behaviour act as genetic units and show dominance and recessiveness. In that case one would expect hybrids of particular species to show consistency in their behaviour since presumably the same characters would always be dominant.

In this respect it is interesting to compare the song-postures. The Sharptail sings with flank feathers fluffed and tail raised and spread. The Silverbill sings with plumage unfluffed and tail closed and lowered. Dr. Eisner's hybrids sang in a Silverbill posture, but with flank feathers fluffed; while mine sang in a Silverbill posture but with tail spread. It would appear that the raising and the spreading of the tail in the case of the Sharptail are controlled by separate genes.

It is obvious that we need much more information before we can be at all dogmatic on this subject. This is one of those occasions where only aviculture can supply an answer, and any aviculturist who succeeds in breeding such hybrids, and who can spare the time carefully to record the differences between them and the parent species can make a useful contribution to scientific knowledge.

*

*

*

THE BREEDING OF THE BENGAL PITTA

By CHARLES EVERITT (Trenton, New Jersey, U.S.A.)

I consider that there is no need for a detailed description of this handsome little Indian bird for the coloured plate, from a painting by D. M. Reid-Henry in the July/August, 1958, issue of this MAGAZINE is so true to life that it could not be bettered in mere words. It is no wonder that Indian villagers often refer to it as the Painted Thrush.

Towards the later part of 1959, Mr. Boehm received three of this species and, customary to the usual practice with any of the Pitta family, housed them in separate pens. Every effort was made to detect some differences between them in the hope that there might be a pair. No definite conclusion being reached, it was decided to try them out in the spring of 1960, two at a time, in an aviary. For ease of identification, each bird was banded with a different colour and the trials began. First, "Red" and "Yellow" were introduced to each other but soon had to be parted. "Red" was replaced by "Green" and all was quiet, very quiet in fact for about two months. Finally, in June, a nest, rather a clumsy affair, was constructed in a Canadian Hemlock. They were fourteen days on the job and then it was deserted, still incomplete.

Although this was a disappointment, it did at least indicate that a pair may have been sorted out but, they could, of course, be two females. A photograph of one of them, later proved to be the male, in the aviary in which the eventual breeding took place, appears opposite page 227 of the November/December, 1960, issue of this MAGAZINE. Having had no information or experience on two Pittas living amicably together the entire year through, with the coming of winter they were separated once more. It was not until April, 1961, that they were returned to the same aviary in which they had made the attempt at nest building.

Early in May, "Green" was observed busy on a nest in a White Pine. It was located about 6 feet up at the junction of a branch with the main trunk of the tree. Although the other bird brought various materials, the main construction was carried out by the one bird. The outer covering was comprised of grasses and dried leaves, all held together with twigs and roots, the entire assembly being bound with dried reeds. It was a large, almost globular, affair except that the length exceeded the breadth. The entrance hole was low down and led into a tunnel-like aperture which went in for about 6 inches at one level and then dropped into a cup-like depression at the end. The total depth from entrance to rear was about 10 inches. The interior was lined with dried grasses and green leaves.

The first egg was laid on 3rd June, when it was revealed that

"Green" was the female. The final clutch of five was completed by the 7th, but the birds had been sitting steadily from the arrival of the second egg. It appeared that the male did the daytime shift, the female taking over in the late afternoon. It was confirmed that incubation had begun with the laying of the second egg for, on 21st June, two chicks hatched with a further one on each of the next two days. The remaining egg was removed later and found to be clear. It measured 22 by 23 mm., almost spherical, and was china-white in main colour with speckles and hair lines of brownish purple.

Owing to the depth of the nest, further aggravated by overhanging branches, little could be seen of the chicks although it was possible to discern that they were dark skinned, practically devoid of any nestling fluff, flat headed, and with bright red-orange gapes. As with the incubation both parents shared in the rearing which was carried out entirely with live food. Owing to the size of the aviary, 65 by 28 feet, and the fact that it was well planted with shrubs and trees, they were able to forage a tremendous amount of grubs and insects. These were supplemented by regular issues of mealworms and maggots plus a daily replenishment of freshly gathered leaf-mould which was placed in a portable tray at the foot of the pine.

The young birds progressed rapidly and, by 28th June, all had their eyes open and began to gather at the entrance to the nest ever ready to take whatever the adults brought to them. Nine days later two left the nest and the following day it was empty. As each came out it was caught up and banded. Within five days of this they were all feeding themselves and fully independent.

Their plumage was dark grey on the underparts with dull bottle-green upper feathering. The head markings were fainter than those of the adults but closely followed the same general colour pattern. Their bills, however, were bright orange throughout and lacked the black tip of the mature birds. The first visible change in colouring did occur in the bill and the end had darkened considerably by the time they were independent, i.e. five days after leaving the nest. At the end of a further six days the centre of the abdomen began to change to fulvous, which gradually spread throughout the lower parts until, by the time they were seven weeks old, they had taken on the same colouring of the lower plumage as their parents, even to the red under-tail feathers. The head markings and upper plumage was a little slower in developing and it was not until they were ten weeks old that the coloured bands on their legs became the only sure means for distinguishing them from the older birds.

By the time the first round was independent the nesting pair had completely demolished their nest and had built another, similar in pattern, in a different White Pine but about a foot higher up and facing north this time whereas the previous one had faced south.

A second round of five eggs was duly produced and again but four hatched, the incubation and rearing following on the exact same lines as with the prior round.

Needless to say, all the young birds were removed immediately they were fending for themselves and placed in separate aviaries, one to each. Unfortunately one of them flew into a door and broke its neck and another was taken by a rat. However, it does leave six young Bengal Pittas which have yet to be sexed.

The sexes are almost identical in appearance but close scrutiny of the true pair owned by Mr. Boehm has revealed the following differences although they are not considered to be of sufficient intensity to enable definite sexing of a singleton bird to be undertaken. The variations are that the red feathering of the vent appears to be more intense in the males ; the body size is slightly greater in the male but the bill of the female is a shade longer. Not being aware of the location of another true pair in the vicinity, it has not been possible to compare these observations with any other birds.

To date, I have been unable to trace any record of the prior breeding of this species in captivity and it seems that this may be a world's "first" for Edward Marshall Boehm. Any further information on this point would be appreciated.

* * *

THE BREEDING OF THE SEVERE MACAW (*Ara severa severa* (Linnaeus)) IN THE PHEASANTRY AT WHIPSNAD PARK

By P. H. MAXWELL (Whipsnade, Beds, England)

I bought my hen Severe Macaw from Mr. Ford of Woolwich in 1956. The cock bird I obtained from Miss Knobel a few years later. Unfortunately it had a crooked beak and eventually bit off all its toes.

They lived together in the Parrot House till it was closed when they were placed in an aviary. The hen used to go to nest each year and lay eggs.

At about the end of August, 1961, the cock was found badly damaged and died from its wounds after a few days. About the middle of September a young one fully feathered was seen looking out of the nest. In a few days it left the nest and now is flying around with its mother and feeding itself.

They nested in a slanting wooden tree-trunk nest-box. They did not have any special food, only sunflower and apple and the scraps they got from the visitors.

There is an account of the Severe Macaw breeding in captivity in

Denmark by Otto Hirthe of Copenhagen, in the AVICULTURAL MAGAZINE for 1907, pages 126-127, but I believe this is the first time it has bred in England.

* * *

TRANSPORT OF BIRDS BY AIR

By J. J. YEALLAND (London, England)

Early in 1959 a committee was set up by the British Standards Institution in order to advise on the packaging of live animals for transportation by air. The work was divided among three sub-committees, the one with which we are here concerned advising on birds (including day-old chicks and turkey poults) and reptiles.

The Avicultural Society was represented by Miss Phyllis Barclay-Smith and Mr. G. S. Mottershead ; the National Council for Aviculture by the late Mr. E. N. T. Vane, and the Zoological Society of London by the Veterinary Officer and myself.

The recommendations (which include line drawings) are published by the British Standards Institution and here I will only mention some of the important features of them :—

Newly caught birds should not be sent and those being sent must be in good health and well accustomed to the kinds of food that they would receive on the journey. So as to provide for possible delays, food sufficient for twice the anticipated duration of the journey should accompany the birds and instructions concerning their feeding and general care should be clearly indicated on paper pasted to the cage.

The birds must not be left in the sun or in a cold or draughty place, nor must they be stowed in close proximity to cats, etc. They should be sent with the expectation of arrival on a normal working day, the consignee being informed in good time of their despatch. They should be collected as soon as possible after arrival at the destination airport, for the cages are not designed for long occupation.

The birds must be given food and fresh clean water at least once per day on the journey and the lights in the hold should be left on. A muslin curtain should be fixed at the front of cages containing small birds, and a curtain of some stronger material for the larger birds, these curtains to be lowered over the front of the cage during transportation to and from the aircraft and raised after stowage.

There are, of course, many additional recommendations and perhaps the most important of all is the provision of more room for the birds, for there is no doubt that overcrowding is the greatest single cause of suffering and mortality, particularly among the commonly exported small birds.

Valuable help was derived from the Zoological Society's publications on this subject (originally produced in 1928 and revised in 1950) and

grateful acknowledgment should also be made to Mr. Terry Jones, Mr. G. Randau, and to the Wildfowl Trust.

Recommendations for the Carriage of Live Animals by Air.

Part 2 (Small and medium-sized seed-eating birds), 1961, 5s.

Part 8 (Birds other than chicks, turkey poults, small and medium-sized seed-eaters), 1961, 7s. 6d.

The British Standards Institution, British Standards House, 2 Park Street, London, W. 1.

* * *

COUNCIL MEETING

A Council Meeting was held on 6th November, 1961, at the Windsor Hotel, Lancaster Gate, London, W. 2.

OFFICERS FOR 1962

There were the following retirements and appointments :—

Vice-President : Mr. E. J. Boosey resigned and Mr. G. S. Mottershead was designated.

Council : Mr. G. S. Mottershead, Mr. C. M. Payne, and Mr. J. J. Yealland retired by rotation.

Mr. J. O. D'eath, Mr. F. Mosford, and Sir Crawford McCullagh, Bt., were elected to fill the vacancies.

Executive Committee : Mr. E. J. Boosey resigned and Mr. G. S. Mottershead was elected to fill the vacancy.

* * *

HON. LIFE MEMBER

Mr. Harold T. King.

* * *

NATIONAL COUNCIL OF AVICULTURE

The Society has three seats on the Executive Committee of the National Council of Aviculture. Two are currently held by Mr. B. H. Dulanty and Mr. K. A. Norris. The third was vacant, due to the death of Mr. E. N. T. Vane. Mr. D. H. S. Risdon has now been elected to fill the vacancy.

* * *

THE SOCIETY'S MEDAL

The Society's Medal has been awarded to :—

Mr. A. Martin, for breeding the Brown Mannikin, *Lonchura fuscata*, in 1960.

Captain R. S. de Q. Quincey, for breeding the Rufous-bellied Babbler, *Dumetia hyperythra*, in 1960.

Mrs. M. Williams, for breeding the Indian Robin, *Saxicoloides fulicata*, in 1961.

CERTIFICATE OF MERIT

The Society's Certificate of Merit has been awarded to :—

The Wildfowl Trust, for breeding the New Zealand Brown Duck, *Anas aucklandica chlorotis*, in 1960.

ARTHUR A. PRESTWICH,
Hon. Secretary.

* * *

LONDON ZOO NOTES

By J. J. YEALLAND

Four species new to the collection have been received during the past two months. They are a Yellow-necked or Black Bittern (*Dupetor flavicollis flavicollis*), a Chinese Ruddy Crake (*Porzana fusca erythrothorax*), both presented by Dr. K. C. Searle who also sent a pair of Red-crested Wood Quail or Roulroul Partridge, a Chinese Pond Heron (*Ardeola bacchus*), an immature and as yet unidentified cuckoo, and a Chinese Blue Pie.

Four Erckel's Francolins (*Francolinus erckeli*), bred in the Amsterdam Zoo, also represent a species not previously at Regent's Park, the fourth species being a pair of Crimson Finches (*Rhodospingus cruentus*) presented by Messrs. G. H. and J. R. Newmark.

The Yellow-necked or Black Bittern ranges widely over eastern and south-eastern Asia and as far southward as Australia. Of the nominate race La Touche says that it is a common summer visitor to parts of eastern China and is mainly crepuscular in habit, though often to be seen flying during the day. It frequents the paddy fields and reed beds, breeding sometimes among reeds, sometimes in trees or in bamboos, occasionally at a distance from water. At times it nests in gardens or in roadside trees. It comes northward at about the end of April or early in May and leaves during September. There are six races of this species.

The Chinese Ruddy Crake (five races) is also widely distributed over eastern and south-eastern Asia as far as the Celebes. It is a shy skulking bird of marshy places and river banks, the race with which we are concerned being a summer visitor in eastern parts of China and the more northerly parts of Japan. These migrants winter as far southward as Siam and Indo-China where, as in southern parts of Japan, there is a resident population.

Erckel's Francolin inhabits north-eastern Africa, the nominate race living on the high plateaux of Abyssinia and *F. e. pentoni*, a paler and greyer form, in the Red Sea province of the Sudan. It is said to be common.

The Crimson Finch is inappropriately named, for the male is as much black as crimson and the female of a pale buff colour. It inhabits western Ecuador and north-western Peru. It is the only member of the genus and little appears to be known of it.

Among a number of new ducks for the transformed Three Island Pond (all the fences have been removed, the one on the perimeter being replaced by a moat, some bushes and inferior trees have been cleared and the islands turfed) the most noteworthy is a pair of New Zealand Scaup (*Aythya novaeseelandiae*) that were bred by Mr. J. O. D'eath and presented by him. These are descended from specimens received from New Zealand by the Wildfowl Trust several years ago; the species has, however, previously been kept at Regent's Park, for a single specimen was given by the late Sydney Porter in 1946. There appears to be no record of when or how many were imported by him, but it or they were, presumably, the first to reach Europe alive.

Some interesting pigeons and doves have been given by Mr. Tom Spence—an Olive Pigeon (*Columba arquatrix*), a Picazuro Pigeon (*C. picazuro*) that was bred in his aviaries, two Pink-headed Doves (*Streptopelia decaocto roseogrisea*), the wild form of the Barbary and "white Java" Dove, a Dwarf Turtle Dove and a Blue-spotted Wood Dove.

A pair of Painted Spur Fowl (*Galloperdix lunulata*), a Baltimore Oriole, and a Pine Siskin are other notable arrivals.

A Blue-breasted Sapphire Humming Bird was caught in Sussex during October. It had been about the garden, where it was found, and in the neighbourhood for some time. It seems almost certainly to be the bird that escaped during the summer from Mr. Murray's aviaries in Essex.

The Mantell's Kiwi has died after only three years in the Gardens. The cause of death was peritonitis due to the decomposition of a partly formed egg.

A Woodford's Owl that was received in April, 1945, has died. It is likely to have been one that was in Mr. Spedan Lewis's collection at Leckford since before the war. It laid infertile eggs last year and the year before. It and its mate (a specimen of the West African race, *Ciccaba woodfordi nuchalis*), hatched and reared a Snowy Owl during 1960.

*

*

*

BRITISH AVICULTURISTS' CLUB

The seventy-fifth meeting of the Club was held at the Windsor Hotel, Lancaster Gate, London, W. 2, on Monday, 6th November, 1961, following a dinner at 7 p.m.

Chairman : Mr. K. A. Norris.

Members of the Club : Miss P. Barclay-Smith, P. S. Bates, Miss K. Bonner, Rev. A. Campbell, W. D. Cummings, J. O. D'earth, A. C. Edmonds, Miss R. Ezra, Colonel H. B. Finch, L. Georgeson, Mrs. R. Goodman, Dr. R. Gottlieb, A. V. Griffiths, H. J. Harman, L. W. Hill, Miss R. Hill, Dr. E. Hindle, Dr. J. R. Hodges, F. E. B. Johnson, Mrs. S. Johnstone, F. T. Jones, Dr. S. B. Kendall, Miss E. M. Knobel, A. J. Lambert, J. Lee-Hudson, P. H. Maxwell, F. Mosford, G. S. Mottershead, S. Murray, Sir Crawford McCullagh, Bt., W. R. Partridge, A. A. Prestwich, J. H. Reay, D. H. S. Risdon, R. C. J. Sawyer, H. A. Snazle, E. O. Squire, N. R. Steel, P. Sutton, Mrs. P. V. Upton, P. L. Wayre, J. J. Yealland.

Members of the Club, forty-three ; guests, fifteen ; total, fifty-eight.

Philip Wayre, Director, Ornamental Pheasant Trust, showed colour films of some of the pheasants in the Trust's Collection ; waterfowl and animals in his own collection ; " Pooh ", a tame Sun Bear cub ; and " Bokhara ", a Golden Eagle trained to kill.

The date of the next meeting is Monday, 5th FEBRUARY, 1962.

ARTHUR A. PRESTWICH,
Hon. Secretary.

* * *

NEWS AND VIEWS

The Council of the Zoological Society of London has elected Miss E. Maud Knobel an Honorary Fellow. This very rare distinction is shared only with Sir Winston Churchill.

* * *

The International Union of Directors of Zoological Gardens met in Rome last September. At this meeting G. S. Mottershead was elected President, 1962.

* * *

Elliott Morgan, 502 Palisades Avenue, Santa Monica, California, has succeeded Mrs. Hazel Kersh as Editor of *Avicultural Bulletin*, the Journal of the Avicultural Society of America.

* * *

On 5th October, 1961, the Avicultural Society of Australia celebrated the twenty-first anniversary of the foundation of the Society. Our warmest congratulations are extended to all those who made this historical event possible.

The Simon Harvey Memorial Medal, which is awarded each year by the Avicultural Society of South Australia for the most outstanding breeding achievement of the year, has been awarded to Bev Thomas, for breeding the Spotted Crake.

* * *

Any visitor to the Tower of London who takes even a passing interest in birds is fascinated by the Ravens. The cage which at present houses the seven birds is set in an arch opposite the White Tower. It is shortly to be replaced by a larger one of stainless steel.

* * *

Writing at the end of October, Tom Spence says : "A pair of Superb Sprees have three young ones almost ready to leave the nest at this late date (the 25th). The parents have been confined to the shelter since the hatching of the young and have fed them well. The mother, however, is a hand-reared one from an egg fostered out on wild starlings and absolutely nothing upsets her."

* * *

The Kakapo breeding project mentioned in the May-June, 1961, number of the AVICULTURAL MAGAZINE did not meet with the success the very considerable amount of thought and effort involved deserved. Unfortunately four of the five birds died. Somewhat naturally the rather costly failure came in for a great deal of criticism. The authorities would appear to have been perfectly justified in their attempt to preserve a species very near to extinction.

* * *

W. D. Cummings reports three unusual breeding attempts at Keston last year. He writes : "A pair of Lilac-breasted Rollers reared two young up to approximately ten days old when the cock turned on the hen and they had to be separated. The youngsters died.

"Two Giant Whydah hens both built nests but no eggs were found.

"Lastly, a pair of Blue-shouldered Mountain Tanagers built and completed a nest but were disturbed by another pair in the same aviary."

* * *

C. S. Webb writes : "You may be interested to hear that when on a recent ornithological safari in the Bwamba Forest in Western Uganda (bordering the Congo) I saw a flock of the little-known Black-collared Lovebird (*Agapornis swinderniana zenkeri*). This is a forest-dwelling, fruit-eating species which, I believe, has never been in captivity. The flock in question was feeding on the small fruits of a tree on the outskirts of the Bwamba Forest. This is an attractive bird with green upper parts, yellowish-green below, black wings and black collar, rump bright blue, base of tail red."

Dr. Dieter Overländer, Bad Honnef-Rhein, West Germany, reports concerning his Pennant's Parrakeets : " Last year I had quite a good breeding season. My five pairs all had eggs and young ones. Four pairs reared fifteen young between them. Two males (brothers), one year old and still in immature plumage, paired with two sisters, one year older, and reared three and four young ones respectively. The females are hand-reared birds, take food from one's hand and come on to my shoulder. When breeding they were a little aggressive but now are as tame as before. I tried these birds in view of the common opinion that hand-reared Pennant's either do not breed or at least not so freely. My experience is that the contrary is more correct—if the young ones are kept in aviaries as soon as they are independent of being fed by hand."

* * *

A. W. E. Fletcher writes on the last day of September : " Last year I bought a pair of Luzon Bleeding Heart Doves which have been kept in the large mixed aviary. They were in immaculate condition when they arrived and have remained so. They are not very satisfactory birds to keep, as they are extremely wild and nervous, and spend nearly all their time in the shelter.

" Early in August I noticed that a nest was being built on the rafters in the shelter, and a few days later I saw one of the doves on it. It was a typical pigeon nest, very rough and constructed of old millet sprays. Except for an occasional peep through the window, I left them severely alone. Two squabs were hatched about three weeks ago, and left the nest at an early age, which I believe is customary with ground doves. So far they are being successfully reared, but with such nervous parents I shall not be certain of success until they are feeding themselves.

" I am giving soft food, meal worms, earth worms, and soaked brown bread, as I believe these doves require a high protein diet when rearing."

One young one was in fact successfully reared.

A. A. P.

* * *

REVIEWS

DOWN THE LONG WIND. By GARTH CHRISTIAN. George Newnes, Ltd. London, 1961. Price 21s. net.

Bird migration remains a constant source of wonder to all students of natural history and this interesting book will be welcomed not only by professional ornithologists, but also by amateur naturalists and the armchair enthusiast. The author has collected recent information on the subject from a variety of sources, including the observations of the growing army of bird-watchers, and presents it in simple and entertaining language. The book is well illustrated and can be thoroughly recommended to any reader interested in the subject or looking for a suitable present for a young naturalist.

E. H.

* * *

CLIFFS OF FREEDOM. By ROSCOE HOWELLS. Gomerian Press, Llandyssul, 1961. Price 18s. 6d. net.

This story of Skomer Island, which is situated off the west coast of Wales, is closely interwoven with an account of the last man who farmed it—Reuben Codd—and his unequal struggle against the overwhelming difficulties of competing with modern agricultural methods.

In the opening chapters the author gives an account of his first visit to the island so graphically described that the reader cannot fail to have a vivid impression of it, the rough seas through which it is approached, the wild weather which besets it, and the birds and seals which inhabit it. Tracing the history of the island since the time of the ancient Britons the author puts forward many theories including the possible role played by both rabbits and birds in the habitation of the island. The book, however, is chiefly concerned with events since the island was bought by Mr. Walter Sturt in 1922 and the great work he and Reuben Codd, who became his son-in-law, put into the island. It is an intimate account of the fascination, difficulties, and hardships of island life and the character of the people of this part of Wales, their inborn courage, their great knowledge of nature and philosophic outlook, and is full of local anecdotes.

The author's statements regarding the activities of over-avid seekers after ornithological knowledge, and, as can best be described, the "greedy" bird-watcher and bird photographer are disquieting. He undoubtedly feels there is too much interference with birds under the guise of scientific investigation and one feels a sense of bitterness in the concluding chapters. This is a fascinating book which once begun cannot be put down till it is read from cover to cover.

P. B.-S.

CORRESPONDENCE

A SCHEME FOR THE RINGING AND REGISTRATION
OF PHEASANTS

At a meeting of the Council of the Ornamental Pheasant Trust it was agreed that in order to foster and encourage the breeding of rare pheasants by private collectors on sound lines some scheme for the recording and registration of these birds was desirable. I was asked to be ring secretary and to keep the necessary records, and this I am delighted to do.

It is obviously impractical, and indeed quite unnecessary, to ring and record every pheasant bred each year in captivity, but certain species are suffering severely from inbreeding. Although these species have been kept in captivity for many years, great difficulties stand in the way of obtaining new blood, and, in certain cases, numbers of fertile breeding pairs become fewer each year. Other species have always been rare and never successfully established in captivity.

Briefly, I envisage the scheme to work like this. I would keep a register of all birds in Great Britain of the rare species of pheasants and allied birds. To enable me to keep this up to date each owner should let me know how many birds he has of these species, and their relationship to one another. Any information such as origin of the parent stock would, of course, be a great help.

Breeders will be given a stud number, and a number for each bird, and in the summer of each year rings would be issued for ringing the birds bred that year. It would of course be additionally helpful if I could be notified of all deaths and other losses, and movements from one collection to another, in addition to new hatchings and rearings.

One of the functions of the scheme would be to enable birds to be exchanged with a view to providing breeders with unrelated blood.

It would seem unnecessary to keep any record of the following species which are well established in captivity :—

Golden Pheasant, *Chrysolophus pictus*
 Lady Amherst's Pheasant, *C. amherstiae*
 Reeves's Pheasant, *Syrmaticus*
 Swinhoe's Pheasant, *Lophura swinhoei*
 Silver Pheasant, *L. nycthemera*
 Game pheasants, *Phasianus colchicus* & *P. versicolor*
 Indian Peafowl, *Pavo cristatus*

The scheme would, of course, include all rare species of *Phasianidae*, and any one having rare quail or partridges would, it is to be hoped, let me have details.

The extent of success of the scheme will depend entirely on the amount of co-operation obtained, and I would be most grateful if breeders would let me have their comments, and state if they would be willing to participate, as soon as possible.

THE GROVE, STAGSDEN, BEDFORD.

F. E. B. JOHNSON.

* * *

A NOTE ON "NIDIFICATION"

In an article in the final number of the MAGAZINE for 1961, Mr. W. G. Conway, of the New York Zoological Society, stated of the Tacazze Sunbird that the "incubation period was fifteen-and-a-half days and nidification required twenty days". It may be that this use of the word nidification is common in the United States, but this is the first time I have seen it used with this meaning in this country.

Nidification, as its Latin origin *nidus* + *ficare* shows, means the building of the nest. I am quite sure Mr. Conway does not intend to suggest that the Sunbirds took twenty days to build the nest but that the young spent twenty days in the nest. Our technical jargon in the avicultural world is fast growing unmanageable anyway, and it seems unnecessary to confuse the issue by using words in their wrong senses. The fashion for classical vocabulary being what it is, especially in America, I suppose a word must be found for this part of a bird's life—a frightful suggestion might be nidimansion—but why not simplify and call it the nestling period?

4 DRAKEFIELD ROAD, LIVERPOOL, 11.

D. G. SCRAGG.

THE AVICULTURAL : SOCIETY :

FOR THE STUDY OF
BRITISH & FOREIGN BIRDS
IN FREEDOM & CAPTIVITY

OFFICERS FOR THE YEAR 1962

President

D. SETH-SMITH

Vice-Presidents

J. SPEDAN LEWIS, J. DELACOUR, MISS E. MAUD KNOBEL,
ALLEN SILVER, G. S. MOTTERSHEAD

Council

MISS P. BARCLAY-SMITH	A. LAMB
MISS K. BONNER	SIR CRAWFORD McCULLAGH, Bt.
W. D. CUMMINGS	S. MOSFORD
J. O. D'EATH	K. A. NORRIS
DR. W. C. OSMAN HILL	W. R. PARTRIDGE
DR. E. HINDLE	A. A. PRESTWICH
F. E. B. JOHNSON	D. H. S. RISDON
F. T. JONES	T. SPENCE
DR. F. B. LAKE	P. L. WAYRE

Executive Committee

MISS P. BARCLAY-SMITH	G. S. MOTTERSHEAD
MISS K. BONNER	A. A. PRESTWICH
MISS E. M. KNOBEL	D. SETH-SMITH

Hon. Secretary-Treasurer

A. A. PRESTWICH
Galley's Wood, Limpsfield, Nr. Edenbridge, Kent

Assistant Secretary

MISS KAY BONNER

Editor

MISS PHYLLIS BARCLAY-SMITH, M.B.E.
51 Warwick Avenue, London, W. 9

Auditor

J. WATKIN RICHARDS, Certified Accountant

OFFICERS OF THE AVICULTURAL SOCIETY PAST AND PRESENT

PRESIDENTS

1894-1895	THE COUNTESS OF BECTIVE
1896-1920	THE REV. CANON AND HON. F. G. DUTTON (later LORD SHERBORNE)
1921-1925	THE REV. H. D. ASTLEY
1926-1955	A. EZRA, O.B.E.
1956-	D. SETH-SMITH

SECRETARIES

1894-1896	DR. C. S. SIMPSON	1914-1916	{ T. H. NEWMAN DR. A. G. BUTLER
1896-1899	H. R. FILLMER	1916-1919	{ MISS R. ALDERSON DR. A. G. BUTLER
1899-1901	J. LEWIS BONHOTE	1920	DR. L. LOVELL-KEAYS DR. A. G. BUTLER
1901-1903	R. PHILLIPPS	1921-1922	J. LEWIS BONHOTE
1903-1904	{ R. PHILLIPPS DR. A. G. BUTLER	1923-1948	MISS E. MAUD KNOBEL
1904-1909	{ T. H. NEWMAN DR. A. G. BUTLER	1949-	A. A. PRESTWICH
1909-1914	{ R. I. POCKOCK DR. A. G. BUTLER		

ASSISTANT SECRETARY

1950-	MISS KAY BONNER.
-------	------------------

TREASURERS

1894-1897	H. R. FILLMER	1917-1919	A. EZRA
1897-1899	O. E. CRESSWELL	1920	DR. L. LOVELL-KEAYS
1899-1901	J. LEWIS BONHOTE	1921-1922	J. LEWIS BONHOTE
1901-1906	W. H. ST. QUINTIN	1923-1948	MISS E. MAUD KNOBEL
1906-1913	J. LEWIS BONHOTE	1949-	A. A. PRESTWICH
1913-1917	B. C. THOMASSETT		

EDITORS

1894-1896	{ DR. C. S. SIMPSON H. R. FILLMER	1921-1923	{ R. I. POCKOCK D. SETH-SMITH
1896-1899	H. R. FILLMER	1924	THE MARQUESS OF TAVISTOCK
1899-1901	O. E. CRESSWELL	1925	THE MARQUESS OF TAVISTOCK
1901-1907	D. SETH-SMITH	1926-1934	D. SETH-SMITH
1907-1908	{ D. SETH-SMITH DR. A. G. BUTLER	1935	THE HON. ANTHONY CHAPLIN
1908-1909	{ D. SETH-SMITH FRANK FINN	1936-1938	MISS E. F. CHAWNER
1909-1910	{ FRANK FINN J. LEWIS BONHOTE	1939-	MISS E. F. CHAWNER MISS PHYLLIS BARCLAY- SMITH, M.B.E.
1910-1912	J. LEWIS BONHOTE		
1912-1917	THE REV. H. D. ASTLEY		
1917-1919	DR. GRAHAM RENSHAW		
1920	DR. GRAHAM RENSHAW		

MEDALLISTS OF THE AVICULTURAL SOCIETY

THE PRESIDENT'S MEDAL

MISS PHYLLIS BARCLAY-SMITH, M.B.E., 14th March, 1960.
ARTHUR ALFRED PRESTWICH, 14th March, 1960.

THE KNOBEL AWARD

STEN BERGMAN, D.Sc., 14th March, 1960.
CURT AF ENEHJELM, 14th March, 1960.

SPECIAL BIRD FOODS



FAMOUS
SINCE
1823

Universal (Pictorial Packet)	Fortifier	Perfort	Insectivorous (Red Packet)	Fort-Egg and Colorfort
$\frac{1}{2}$ lb. 1/10 $\frac{1}{2}$	3 oz. 10 $\frac{1}{2}$ d.	3 oz. 10 $\frac{1}{2}$ d.	$\frac{1}{2}$ lb. 2/-	$\frac{1}{2}$ lb. 2/3
1 lb. 3/6	$\frac{1}{2}$ lb. 2/-	$\frac{1}{2}$ lb. 2/-	$\frac{1}{2}$ lb. 3/-	1 lb. 4/6
3 $\frac{1}{2}$ lb. 11/9	1 lb. 4/-	1 lb. 4/-	1 lb. 6/-	1 lb. 15/-
7 lb. 22/9	3 $\frac{1}{2}$ lb. 13/6	3 $\frac{1}{2}$ lb. 13/6	3 $\frac{1}{2}$ lb. 21/-	7 lb. 29/9
28 lb. 85/-	7 lb. 26/6	7 lb. 26/6	7 lb. 38/8	28 lb. 112/-
	28 lb. 98/-	28 lb. 98/-	28 lb. 154/-	

HEALTH GRAINS

"GREENSTUFF"

C.I.O. Rearing and Condition Food (Condition Seed)

$\frac{1}{2}$ lb. 1/-	14 lb. 20/-	3 oz. 1/-
1 lb. 2/-	28 lb. 38/6	1 lb. 4/6
3 $\frac{1}{2}$ lb. 5/6	56 lb. 75/-	3 $\frac{1}{2}$ lb. 15/6
7 lb. 10/6	1 cwt. 140/-	7 lb. 30/-

A dehydrated form of green food consisting of lettuce, spinach, carrot, etc., readily taken by all birds.
Packets 1/- & 3/6, also sold in bulk.

When sending for above Birdfoods please add for part cost of postage:
 $\frac{1}{2}$ lb. pkts. 6d. 1 lb. pkts. 1/- 3 $\frac{1}{2}$ lb. and 7 lb. 2/- 28 lb. and over Carriage Paid.

MEALWORMS

"MARBA" DUTCH BRED (small type)

"SANTA GERMAN BRED" (large type)

Whether you prefer the small Dutch mealworm or the larger German type, we can give you the finest service obtainable, with shipments arriving twice weekly. Dispatch guaranteed same day as orders received.

1 oz. 2/9	2 oz. 4/6	4 oz. 7/6	8 oz. 12/6	1 lb. 22/6
Also in original Boxes as imported Nett weight guaranteed				
2 lb. 40/-	3 $\frac{1}{2}$ lb. 60/-	6 $\frac{1}{2}$ lb. £5 15s. 0d.	All Carriage Paid.	

MAGGOTS

We sell only the best liver-fed maggots, specially re-cleaned and ready for immediate use for bird feeding. Packed in bran. No mess or smell.

2 oz. 3/4	4 oz. 4/6	8 oz. 7/-	1 lb. 10/6
-----------	-----------	-----------	------------

FEEDING SUNDRIES

	$\frac{1}{2}$ lb.	1 lb.
Dried Flies (Chinese)	5/-	9/6
Silkworm pupae (Whole)	3/9	6/6
" (Ground)	4/-	6/9
Dried Mayfly larvae (Whole)	6/6	12/6
" (Ground)	6/9	12/9
Dried Dragonfly larvae	6/6	12/6
Dried Shrimp (Fine, Medium, or Coarse)	2/3	3/6
Ant Eggs	13/6	25/-
Pure Dried Egg	6/6	12/6
Dried Rowan Berries (Whole)	2/9	4/6
" (Crushed)	3/-	4/9
Pure Breadcrumbs (Fine, Medium, or Coarse), far superior to biscuit meal	2 lb. 3/-	4 lb. 5/6
" Egg-crumps," guaranteed to consist of 90 per cent breadcrumbs and 10 per cent pure egg	2 lb. 5/6	4 lb. 10/6
	7 lb. 17/6	

ALL ABOVE PRICES ARE POST PAID

E. W. COOMBS, LTD.

255 Walderslade Road, Chatham, Kent

Phone: Chatham 61068

Grams: Avicult, Chatham, Kent

BOOKS on BIRDS

Catalogue

on

request

WHELDON & WESLEY LTD.

LYTTON LODGE, CODICOTE,

NR. HITCHIN, HERTS.

Telephone : CODICOTE 370.

STUDIES ON GREAT CRESTED GREBES

By

K. E. L. SIMMONS

Price 5/6 post free



PUBLISHED BY
THE AVICULTURAL SOCIETY
GALLEY'S WOOD,
LIMPSFIELD,
NR. EDENBRIDGE, KENT.

When Visiting the

COTSWOLDS

AVICULTURISTS ARE WELCOME

TO

“BIRDLAND”

*Set in the charm of an
old English Garden at
the lovely Village of*

BOURTON-ON-THE-WATER

CANDIDATES FOR ELECTION

- H. BIRKIN, Box 7021, Rincon Annex, San Francisco, Calif., U.S.A. Proposed by A. Birtles.
- ROBERT S. CONSTABLE, 6521 Blucher Avenue, Van Nuys, Calif., U.S.A. Proposed by F. H. Rudkin.
- CHARLES L. CRANG, B.Sc., M.D., 155 Kingsmount Blvd., Sudbury, Ontario, Canada. Proposed by A. A. Prestwich.
- J. A. CUTLER, Place House, The Stoops, Rainhill, Nr. Liverpool, Lancs. Proposed by W. B. Frostick.
- MRS. LENA DACOSTA, Four Oaks, 33 London Road, Brentwood, Essex. Proposed by L. Cox.
- F. V. EVERALL, Hockerill Cottage, Brewood, Staffs. Proposed by Miss K. Bonner.
- JOHN GANDY, 1 Verdin Street, Northwich, Cheshire. Proposed by John James Gandy.
- ROBERT J. GREGORY, 11a Newcastle Street, Rosewater, South Australia. Proposed by A. A. Prestwich.
- WILLIAM HALL, 763 Childers Road, Gisborne, New Zealand. Proposed by A. A. Prestwich.
- MISS SUSAN HARPER, 22 Lingdale Road, West Kirby, Wirral, Cheshire. Proposed by W. P. Bland.
- E. W. HITCHENS, Village Farm, Felmersham, Bedford. Proposed by F. E. B. Johnson.
- MRS. N. J. HORI, Field House, Clapper Lane, Staplehurst, Kent. Proposed by A. A. Prestwich.
- H. HOYLE, 14 Royds Street, Rochdale, Lancs. Proposed by A. Birtles.
- ROBERT THOMAS KERLY, 69a High Street, Waltham Cross, Herts. Proposed by Miss K. Bonner.
- ALAN E. KING, 31 St. Nicolas Park Drive, Nuneaton, Warwicks. Proposed by Miss K. Bonner.
- O. D. LARMER, 1354 Argyle Street, Regina, Sask., Canada. Proposed by Lloyd B. Thompson.
- J. P. LEROY, 230—190th Street, Miami Beach 62, Florida, U.S.A. Proposed by Otis Wade.
- DR. HAROLD H. McLEMORE, M.D., 24 North Hibbert Street, Mesa, Arizona, U.S.A. Proposed by A. A. Prestwich.
- AAGE V. NIELSEN, Thorupgaard alle 32, Copenhagen-Vanløse, Denmark. Proposed by J. L. Albrecht-Møller.
- E. J. NIELSEN, Lærkevej 14, Kølvrå, Denmark. Proposed by A. A. Prestwich.
- A. PACK-BERESFORD, Woburn Lodge, Millisle, Co. Down, Northern Ireland. Proposed by Sir Crawford McCullagh, Bt.
- JOHN W. PEEL, Grange Farm, Clopton, Woodbridge, Suffolk. Proposed by E. O. Squire.
- DR. M. PEETERMANS, 58 Av. Brugmann, Brussels, Belgium. Proposed by Miss K. Bonner.
- L. J. H. PETERS, Langestraat 9A, Tilburg, Holland. Proposed by A. J. Lambert.
- GEORGE A. PETRIE, 46 Tuke Street, Dunfermline, Fife, Scotland. Proposed by Miss K. Bonner.
- TREVOR C. RUSS, Mt. Schank, via Mt. Gambier, South Australia. Proposed by Miss K. Bonner.
- S. S. SLACK, Ryecroft, Two Dales, Matlock, Derbyshire. Proposed by A. A. Prestwich.
- M. R. THOMPSON, 4 Wyvern Square, Sunderland, Co. Durham. Proposed by Miss K. Bonner.
- MISS M. WHITWORTH, 65 Gloucester Place, Portman Square, London, W. 1. Proposed by Miss K. Bonner.
- R. L. WILLETT, Whitton Lodge, Ipswich. Proposed by E. O. Squire.
- IAN D. W. WOODWARD, M.B.O.U., "Lavrock," 66 Oak Street, Hemel Hempstead, Herts. Proposed by G. J. Irving.

NEW MEMBERS

The twenty-six Candidates for Election in the November–December, 1961, number of the *Avicultural Magazine* were duly elected members of the Society.

CHANGES OF ADDRESS

- Mrs. MURIEL M. ADAMSON, to Route 2, Box 575B, Conroe, Texas, U.S.A.
WALTER BIRD, to Braes Farm House, Bower Hill Lane, South Nutfield, Surrey.
TORD CARLSSON, to Bolagsvagen 12, Malmberget, Sweden.
W. L. EAVES, to 8 Sharmans Cross Road, Solihull, Warwicks.
C. EVERITT, to 8 Durham Avenue, Trenton 8, New Jersey, U.S.A.
Mrs. C. EVERITT, to 8 Durham Avenue, Trenton 8, New Jersey, U.S.A.
EDWARD R. FITZSIMMONS, to 853 Arlington Avenue, Berkeley, Calif., U.S.A.
LEO GOLDENBERG, to P.O. Box 4346, Tel-Aviv, Israel.
Sir EDWARD HALLSTROM, to 1 Coolawin Road, Northbridge, Sydney, N.S.W., Australia.
PAUL HANSEN, to Vigen, Kølstrup, Fyn, Denmark.
JAMES M. HARTSHORNE, to 108 Kay Street, Ithaca, New York, U.S.A.
Dr. W. C. OSMAN HILL, to "Moonfleet", Frithsden Copse, Berkhamsted, Herts.
S. F. HOOPER, to Redbank, 6 Burdett Road, Wisbech, Cambs.
ALAN JONES, to 50 Kingswood Road, Tadworth, Surrey.
Capt. J. LEE-HUDSON, to "Closefield", Great Brickhill, Nr. Bletchley, Bucks.
Mrs. CYNTHIA B. MADIGAN, to Villa Levona, Barrio de Martutene, San Sebastian, Spain.
Mrs. McDONALD L. KAH, to P.O. Box 133, Lutz, Florida, U.S.A.
Mrs. C. E. T. LONGHURST, to Flat 1, 1 Beresford Road, London, N. 5.
H. MILLIGAN, to "Lynton", Highbury Road, Anna Valley, Andover, Hants.
Miss HÉLÈNE T. MORROW, to 1509 Monte Vista Street, Waco, Texas, U.S.A.
Rev. NEVILLE MORTON, to 11 Saltersbrook Road, Darfield, Nr. Barnsley, Yorks.
A. R. M. McTURK, to 9 Marlborough Road, Aylesbury, Bucks.
A. RUTGERS, to Joppelaan 108, Joppe, Holland.
E. A. SECCULL, to 80 Withycombe Drive, Banbury, Oxon.
K. E. L. SIMMONS, to Ascension School, Cable and Wireless, Ltd., Ascension Island.
M. STOK, to 73 High Lea, Yeovil, Somerset.
W. G. TEAGLE, to 246 Old Kent Road, London, S.E. 1.
Dr. J. V. TRANTER, to 14 Willow Road, Finchfield, Wolverhampton, Staffs.
Lieut.-Col. H. F. TREWBY, to Heron Cottage, 76 Little Ann, Andover, Hants.
W. WADLER, to Artillerigatan 95, Stockholm No., Sweden.
C. S. WEBB, to c/o Coryndon Museum, Box 658, Nairobi, Kenya.
JESSE D. WILLMOTT, to Box 214, Mount Dora, Florida, U.S.A.
JOHN G. WOODNUTT, to 7 St. Peters Road, Burgess Hill, Sussex.

READMITTED

- W. G. BROWN, Berry End Farm, Eversholt, Bletchley, Bucks.
W. J. PAGE, 52 Stanmer Street, Battersea Park, London, S.W. 11.

DONATIONS
(Coloured Plate Fund)

	£	s.	d.		£	s.	d.
H. R. Anderson		5	0	J. Z. Howell		15	0
H. Bancroft		5	0	G. J. Irving	1	1	0
F. W. Behrent	1	0	0	J. Kingston	1	0	0
W. Bird	10	0		J. Spedan Lewis	5	0	0
K. G. Cartwright		5	0	Rev. N. Morton		5	0
Lieut.-Col. H. W. Clayden	15	0		F. W. Perowne	15	0	
Denby Collins	1	0	0	E. A. Read		5	0
H. Cowley	2	2	0	G. A. Smith	1	0	0
B. N. Douetil	1	0	0	Sir William Proctor Smith	10	0	0
J. E. Dunster		10	0	A. E. Styles		10	0
F. Dutton		5	0	M. G. Stern		5	0
E. R. FitzSimmons	2	10	0	G. Stuckey		10	0
A. W. Fletcher		10	0	Mr. and Mrs. J. A. Swan	4	4	0
J. J. Gandy	3	0	0	E. B. Tanner		1	0
Mrs. O. L. Gent		10	0	G. F. Townsend		5	0
H. F. Gruber		10	0	Mrs. M. Williams	1	0	0
W. Hacker		10	0	J. D. Willmott	1	0	0

MEMBERS' ADVERTISEMENTS

The charge for Members' advertisements is THREEPENCE PER WORD. Payment must accompany the advertisement, which must be sent on or before the 15th of the month to A. A. PRESTWICH, GALLEY'S WOOD, LIMPSFIELD, NEAR EDENBRIDGE, KENT. All members of the Society are entitled to use this column, but the Council reserves the right to refuse any advertisements they consider unsuitable.

For Indian Birds buy direct from Baidyanath Acooli, 8/5a Barrackpore Trunk Road, Calcutta 2, India.

Wanted. Male Blue-winged Grass Parrakeet, 1960-bred preferred ; also *Avicultural Magazine*, 1906, 1907, 1926, and 1927.—Albert Birtles, 169 Royds Street, Rochdale, Lancs.

Wanted. *Avicultural Magazine*, 1920 and 1922 :—F. C. Barnicoat, 207 St. Amant Street, Malvern, Johannesburg, South Africa.

Wanted. Drake Baikal Teal, or would sell duck. Sale : Duck Carolina, £2 :—John Wilcock, The Chase, 259 Duffield Road, Allestree, Derbyshire.

Wanted. One female Blue-bonnet, Barnard's, Pennant's, Adelaide ; and male King :—Aage Madsen, S'kovbo, Viborg, Denmark.

NOTICE

**Council has decided that, with a view to economy,
no List of Members will be published this year.**

**ARTHUR A. PRESTWICH,
Honorary Secretary.**

AVICULTURAL MAGAZINE



CONTENTS

	PAGE
The New Zealand Honeyeaters (<i>with coloured plate</i>), by ALAN R. LONGHURST .	45
Some Breeding Results in the Hallstrom Collection, by Sir EDWARD HALLSTROM	46
Further Notes on the Breeding of the Red Bird of Paradise, by A. H. ISENBERG	48
Breeding the Black-headed Sugarbird (<i>Chlorophanes spiza</i>), by CHARLES EVERITT	49
Liberty Breeding of the Indian White-eye (<i>Zosterops palpebrosa</i>), by R. A. RICHARDSON .	51
Breeding of Pink-footed Geese, by A. W. S. DEAN .	54
The Capture and Maintenance of Hummingbirds for Experimental Purposes (<i>with plates</i>), by ROBERT C. LASIEWSKI .	59
Breeding the Derby Flycatcher (<i>Pitangus sulphuratus</i>), by CHARLES EVERITT .	64
An Interesting Hybrid and Other Birds Bred at Portola Valley in 1961, by A. H. ISENBERG .	66
Random Observations in a Waterfowl Collection, by MARK VINSON .	68
Further Notes on the Golden-shouldered Parrakeet (<i>Psephotus chrysopterygius</i>), by ALAN LONDON .	70
A New Aviary at Wassenaar (<i>with plate</i>), by J. J. YEALLAND .	71
Foreign Birds at the National Cage Bird Show, Olympia .	72
London Zoo Notes, by J. J. YEALLAND .	76
British Aviculturists' Club .	76
News and Views .	77
Correspondence .	79

THE AVICULTURAL SOCIETY

Founded 1894

President : D. Seth-Smith, Esq.

**Hon. Secretary and Treasurer : A. A. Prestwich, Galley's Wood,
Edenbridge, Kent.**

Assistant Secretary : Miss Kay Bonner.

Membership Subscription is £1 per annum, due on 1st January each year, and payable in advance. Life Membership £15. Subscriptions, Change of Address, Names of Candidates for Membership, etc., should be sent to the Hon. Secretary.

THE AVICULTURAL SOCIETY OF AMERICA

Hon. President : Mr. Jean Delacour.

President : Mr. Paul Schneider.

**Secretary : Mr. Otis Wade, 1806 Redesdale Avenue, Los Angeles 26, Calif.,
U.S.A.**

The annual dues of the Society are \$2.50 per year, payable in advance. The Society year begins 1st January, but new members may be admitted at any time. Members receive a monthly bulletin. Correspondence regarding membership, etc., should be directed to the Secretary.

THE AVICULTURAL MAGAZINE

The Magazine is published bi-monthly, and sent free to all members of the Avicultural Society. Members joining at any time during the year are entitled to the back numbers for the current year on the payment of subscription. All matter for publication in the Magazine should be addressed to :—

**The Editor : Miss Phyllis Barclay-Smith, 51 Warwick Avenue, London,
W. 9. Telephone : Cunningham 3006.**

The price of the Magazine to non-members is 7s. 6d., post free, per copy, or £2 5s. for the year. Orders for the Magazine, extra copies and back numbers (from 1917) should be sent to the publishers, Stephen Austin & Sons, Ltd., Caxton Hill, Ware Road, Hertford, England. Telephone : Hertford 2352/3/4.



C. E. Tallent Kelly '58

TUI OR PARSON BIRD.

AVICULTURAL MAGAZINE

THE JOURNAL OF THE AVICULTURAL SOCIETY

Vol. 68.—No. 2.—All rights reserved.

MARCH-APRIL, 1962

THE NEW ZEALAND HONEYEATERS

By ALAN R. LONGHURST (Freetown, Sierra Leone, West Africa)

Of the great diversity of honeyeaters (Meliphagidae) that occur in the Australasian region only three are found in New Zealand ; in Australia, where the family is among the most characteristic of birds, about seventy species occur—a striking illustration of the relative poverty of the New Zealand bird fauna, which is typical of oceanic islands.

The New Zealand honeyeaters are placed in three genera : *Notiomystis*, the Stitchbird ; *Anthornis*, the Bellbird ; and *Prosthemadera*, the Tui. Of these, the first two are rather typical of the family and would be scarcely noticeable in the Australian fauna, while the third, the Tui, is an unusually large and handsome species with a number of peculiar features in its plumage. Most obvious are the white bobbles which hang below the throat in both sexes ; these are composed of a number of curled filamentous feathers that cluster naturally to form the two pendant cup-shaped structures that are so prominent in the living bird. In addition, the shafts of the feathers on the sides of the neck have filamentous extensions of the feather proper so that a mass of white threads adorns the side of the neck and the nape.

These three species of honeyeaters reacted very differently to the invasion of New Zealand by man, his introduction of predatory animals and European birds and—perhaps most important of all—the avian parasites and diseases introduced along with them. All three species apparently maintained their numbers despite the predation of the Maori invaders who culled the bird-stocks for food in an intelligent manner, but reacted more violently to the European invasion. Within a hundred years the Stitchbird was virtually extinct upon the mainland, to hang on only on Little Barrier Island in the north of the country ; the Bellbird was greatly reduced so that a similar extinction was feared, but then staged an impressive come-back so that it is now again abundant in forested country ; the large and ebullient Tui took the invasion in its stride and, maintaining its numbers in the forests,

successfully established itself in farmlands and suburbia, demanding only a minimum of large trees to be left standing.

The Tui's loud and amusing song, full of mimicry and delivered from the topmost twig of a prominent tree, is a well-known sound in the suburbs of Wellington as well as deep in the forest, and considerable numbers will flock to a flowering eucalypt, or to a good stand of the New Zealand flax, and feed acrobatically on the flowers. In thrusting their bills deep into the blossoms, feeding on the nectar, pollen becomes dusted on crowns and foreheads to produce some startling colour effects—the newcomer will comb his books in vain for a species or plumage of Tui having an orange crown. Many of the favourite trees flower in spring and New Zealanders react in the same way to the sight of a Tui feeding in a fine Kowhai—as in the illustration—as do the English to the first Swallow or daffodils.

In the spring a good deal of aggressive posturing and chasing occurs between the males which occupy their favourite song-sites for long periods, leaving them to harry neighbouring territory holders. During this display, and during the song-activities, a great deal of use is made of the feather masses, which are erected and give the bird an altogether grotesque appearance. The Tui is a fascinating bird, and all the more so since it can never be seen in captivity under the existing New Zealand laws.

* * *

SOME BREEDING RESULTS IN THE HALLSTROM COLLECTION

By SIR EDWARD HALLSTROM (Sydney, N.S.W., Australia)

Parrots.

I have bred quite a number of Red-vented Parrots and a number of other small South American parrots, and a few macaws. At the present moment I have one baby Red and Blue Macaw, three baby Red and Yellow, and three baby Blue and Gold. Some macaws come along each year, and I have now completed seven new macaw breeding aviaries. These have quite long flights and are the type of aviary with which I have had quite a lot of success.

The most interesting Australian parrots are the Golden-shoulders. I now have forty of these birds. I have found very great difficulty in rearing the youngsters. In their natural habitat they build in termite mounds, which are quite big affairs with quite an amount of insulation round the breeding chamber. The temperature during May is between 70 and 80 degrees, and occasionally a little more. The parents do a very fine job of rearing their young in a state of nature, but there is really no necessity for them to sit among their babies to allow them to snuggle into their feathers for warmth, and it is usual to see, even

in Sydney in the summertime, the mother sitting alongside the babies. In a state of nature they lay one clutch of eggs about May and, some months later, probably another clutch which they almost invariably rear. The temperature is perfect for them, but in our district they still go to nest in May, and it is cold. Should there be a cold night, and there almost invariably is, they will lose all their babies. They go back to nest again in a few months, the weather is still cold, and the babies can be lost again. On a number of occasions I have taken the babies from the nest within twenty-four hours of hatching, and have successfully reared all the youngsters to maturity. This year unfortunately I have been very busy on other matters and was not able to hand-rear the youngsters. I was obliged to cover the aviaries with plastic. I was then able to install radiators, and by using this method I was able to raise nearly all the young. This was not quite 100 per cent, and a few losses occurred. I am quite sure that only by artificially heating their aviaries or even their nesting accommodation during the breeding season, will they be successfully bred in the hands of the aviculturist.

There are a lot of aviculturists in southern parts of Australia who are very successful and are breeding quite a lot of our nice parrots and parrot-like birds.

In my aviaries I have two pairs of albino Galahs. These have been given an opportunity to go to nest ; the eggs usually have been dropped on the ground, but I am hoping that I will be successful by making minor adjustments to their accommodation.

I think I have mentioned that I had been breeding some lutino Indian Ring-necks. I now have well over 200. Unlike most breeders, I hate parting with birds—I am like a miser, I save them up to look at.

Birds of Paradise.

I have had some successes with several pairs of Ribbon-tailed Birds of Paradise youngsters at my aviaries in Sydney. At Taronga Park, with the assistance of several members of the staff, we reared two Empress of Germany ; these birds have not yet reached maturity but are now about two years old. In my aviaries in New Guinea there have been quite a number of Birds of Paradise go to nest, hatch youngsters, and rear them. The successes so far encouraged me to build forty steel aviaries, large enough to accommodate most species of Birds of Paradise. A number of Blue Birds of Paradise have been hatched there and several are building at this moment. There have been at least two Ribbon-tailed Birds of Paradise, and I am waiting for news of a third one having been hatched, as it was expected in about a week.

The Lesser Bird of Paradise has been successfully raised. Recently a female Ribbon-tailed Bird of Paradise (that had already reared two

youngsters) had accidentally introduced to her a male Lesser Sickle-bill Bird of Paradise. It was noticed that they were mating, we left them alone, and a youngster was hatched and partly reared, but unfortunately we had a record dry spell and these birds require very wet conditions.

The youngster was lost after about ten days. The specimen has been preserved. They have gone to nest again and I am hoping that the performance will be repeated as they have an egg, and I should hear any day the result of this second attempt.

The Princess Stephanies had been kept together with quite a number of other Birds of Paradise in very large aviaries. They built their nests, hatched their youngsters, and I am quite sure that the other Birds of Paradise ate the babies during the mother's absence from the nest, as the mother only feeds the youngster, leaving it exposed to attack.

As soon as the new aviaries have been completed, as many as possible of our Birds of Paradise will be placed in separate aviaries.

It is not as easy as it sounds. Some of the males play no part at all in the rearing or feeding of the youngsters, leaving it all to the females, and I am quite suspicious that the father in some cases is quite capable of making a meal from his newly hatched youngster. It is all very interesting. The experiments and research with these birds would make very pleasant reading to the aviculturist.

* * *

FURTHER NOTES ON THE BREEDING OF THE RED BIRD OF PARADISE

By A. H. ISENBERG (Portola Valley, California, U.S.A.)

1961 came closer to a success with these wonderful birds. A late storm and heavy rain ruined the first nest with two eggs. The female soon built another nest toward the end of April and laid again two eggs. Both eggs hatched in approximately fourteen to sixteen days, but one young disappeared after four days. The other young lasted to the tenth day with quills well developed but not yet popping, when the female killed it and actually tore it limb from limb.

The male had been separated into an adjoining aviary after the hen had been sitting about a week. Next year, I shall take the male far enough away so they cannot see each other. This might do the trick so that, if both birds are here for next year's season, I hope I can then report a full success.

The Lesser Birds of Paradise did nothing although the male displayed constantly. The female carried a few sticks but no nest was built. Again, we can only hope for next season.

BREEDING THE BLACK-HEADED SUGARBIRD

(Chlorophanes spiza)

By CHARLES EVERITT (Trenton, New Jersey, U.S.A.)

The Black-headed Sugarbird, one of the Central American species is well known on the show bench, the male always making a grand exhibit with his jet black head and shining blue-green body plumage. The female is equally attractive in her lighter shades of green, the black of the head being replaced by a finely discernible grey-green mask.

There were four pairs of these birds in Mr. Boehm's collection of exotic birds and, due to the males' natural belligerency towards those of their own kind and gender, they were housed one pair to an aviary. All four aviaries were well stocked with birds of many other species, but the Sugarbirds did not interfere with these in any way. Of the four, three pairs had been *in situ* since early 1960, the last pair being fairly new arrivals. It was the established birds that went to nest and, although all three pairs successfully reared young, it was not a case of either easy nesting or rearing. Practically every snag that aviculturists come up against at some time during the breeding season was met with.

The actual manner of construction of the nests was identical in each instance, a small open cup nest being built by the females, the males assisting in no way whatever. All they did was to perch close by, singing their heads off. The nest measured about 90 mm. across the top and was about 60 mm. deep, the central depression being quite deep, sufficient for the female to be completely concealed except for her head. The clutch consisted of two eggs of varying shades of pinkish brown, heavily spotted with umber, the thicker end being almost obscured. The variations in colour of the eggs occurred at times in the same nest and, therefore, was not, as at first thought, a peculiarity of any one pair.

As with the building of the nest, the incubation was entirely a feminine affair, the period being but twelve days. The nestlings were dark skinned and completely bare of all body covering, their gapes being a bright pink. There were two red spots at the base of the mouth, under the lower mandible, this feature being consistent throughout the nestings. At five days old their eyes were open and quill feathers had begun to form. For the first ten days in the nest the males were not seen to help with the rearing, everything being left to the females. During this time, the sac containing the excreta of the young birds was swallowed by the female, this continuing even after the males did join in with the rearing.

Live-food and nectar appeared to be the sole rearing diet and regular hourly issues of gentles and mealworm pupae was made throughout the day. It had been observed that they were reluctant in taking fully-developed mealworms, even very small ones, to their young, but that

the pupae were accepted with avidity. Fortunately Mr. Boehm has his own mealworm breeding establishment comprised of some 100 separate compartments and it was thus possible to meet their requirements. Once they had passed the tenth day, the males joined in with the rearing and, two days later, the young left the nest.

Their heads were completely bare of all feathering, whilst the underparts were dark grey, the upper plumage being bottle green. Despite their naked appearance they were very active and were soon flying from branch to branch following their parents around for food. It was a further ten days before their heads did feather up and, at five weeks old, they were fully independent. By now their upper plumage had taken on a lighter green shade, the underparts also changing to green of a duller hue. It appeared at this time that there were slight differences in the colouring of the chicks, some being lighter than others and possessing a distinct light-green throat-patch. It was felt that this might well be a sex indicator and, by means of the different coloured leg bands placed on the birds when they vacated their nest, a careful record was kept of the various shades and changes.

Things turned out as had been thought, the birds with the light throats eventually proving to be females. With regard to the males, the black head and the yellow lower mandible were fully visible by the time the birds were four months old. The male parents had themselves sorted out the sexes at the end of three months for they had begun to chivvy them around. To avoid any tragedy, all the young males were caught up and transferred to other quarters.

Although the above may appear to portray a straight-forward breeding, such was not in fact the case. In every instance each pair met with various frustrations, such as nests and eggs destroyed; chicks dying at two and three days old; series of clear eggs, etc. If I were to attempt to detail all the troubles experienced with these breedings it would take up far more space than so far consumed. The breeding period actually extended from early May to late September and, if all the fertile eggs had been hatched and reared to maturity, there would have been eighteen young Black-headed Sugarbirds instead of the nine that were produced. Again, if all the eggs laid had resulted in a fully grown bird, the number would have been well up in the thirties. It has now to be learned at what age this species does go to nest and, for this purpose, three pairs of unrelated young birds have been installed in separate aviaries.

I have not been able to trace any record of a previous successful breeding of this variety in captivity, and it may well be that these by Mr. Edward Marshall Boehm are the first of their kind in such conditions.

LIBERTY BREEDING OF THE INDIAN WHITE-EYE

Zosterops palpebrosa

By R. A. RICHARDSON (Cley, Norfolk, England)

It is difficult to imagine a more delightful little bird than the White-Eye, one of the smallest and certainly the most inexpensive of all the many attractive insectivorous species imported from India at the present time. They are so familiar that a description would be superfluous; ideal aviary birds but prone to plucking and to losing the yellow pigment from their plumage in close confinement.

As White-Eyes are impossible to sex without prolonged observation of behaviour I purchased three specimens from Mr. Trevor Crewes of Sydenham in the spring of 1958 and, after colour-ringing, I released them into my small, planted garden aviary which has an electrically-heated shelter attached. They soon sorted themselves out into a true pair and an odd male and thrived out of doors continuously for the next three years, living on ripe fruit, a few small mealworms, what insects they could catch themselves and a constant supply of artificial nectar of the most elementary formula—honey and Nestle's milk diluted with water and with a dab of Bovril added every other day.

Both in 1959 and 1960 the pair went to nest in the aviary with mixed success, the spare male being segregated each time. The first year a clutch of two infertile eggs was laid in a forsaken Chaffinch's nest fixed up for them in an elder bush and the replacement clutch, though fertile, was ejected from the same nest by one of the other occupants of this community aviary.

In 1960 one nestling hatched from a clutch of two eggs, again in an old Chaffinch's nest, but it was so microscopical and looked so appetizing that it survived only an hour or so before disappearing, eaten, I suspect, by my cock Shama.

During May of 1961, the pair once again began to fiddle with cobwebs and yet another Chaffinch's nest was provided for them but the odd male, which had not been isolated, became dominant and spent most of his time chasing the mated male about the aviary with much bill-snapping, while the female occupied herself by tugging material from the nest until it finally disintegrated and fell to the ground.

At noon on 17th June, after much forethought, I decided to risk liberating this long-established and determined pair in the hope that they would remain anchored about the garden by the captive bird's calls and the tubes of nectar to which they had become addicted.

A small hole which I made in the wire-netting beside one of the feeders was soon discovered and with commendable composure the

pair flitted out and up into the apple tree which shaded the flight. I had hardly finished re-closing the aperture before they returned to drink at the feeder already turned outwards for their convenience.

Thenceforward their visits occurred at about half-hourly intervals and they roosted out at night. So close is the pair-bond in this species that they cannot bear to be out of sight of each other for more than a few moments at a time.

Two days later (19th June) the hen was seen gathering spiders' webs from the eaves of the bird house and, to my delight, I followed her back to a half-built cocoon-like nest 15 feet up in a neighbour's pear tree.

Through binoculars I could see the bird at work through the gauzy, semi-transparent sides of the structure which was a deep cup of billiard ball size slung oriole-wise in the angle of a laterally forked twig. Round and round she shuffled, twining and threading, pressing with chin and breast and scrabbling with her claws all the time shaping and consolidating the fairy-like cradle of cobwebs and grey synthetic fibres filched from some female garment on a nearby washing-line. The cock took an equal share in building and when the inside walls of the "cocoon" were reinforced with short pieces of horizontally woven dry grass it was further lined with downy feathers from the chicken run.

They were never seen to copulate and the only spectacular display observed was on the afternoon of 22nd June, when I believe the first egg was laid. The hen had been sitting in the nest for some time in a curiously strained attitude, often half closing her eyes. Suddenly she left and her mate, which had been singing his breezy little song in a nearby tree, dashed at her and chased her helter-skelter in and out of the garden for a few seconds before leaving her preening and sun-bathing in the hedge.

The second egg doubtless followed the next day, for it was then that incubation appeared to begin, both sexes again taking an equal share, and relieving each other at frequent intervals. The routine was identical on every occasion, the off-duty bird returning to the nest which was vacated by the incubating bird as soon as its mate arrived. So rapid was the change-over that the eggs were never left uncovered for longer than about two seconds at a time, the out-going bird flying straight to the nectar for refreshment and often to the earthenware bathing saucer kept permanently filled on the aviary roof. They were never seen to feed each other.

I am of the strong opinion that hatching took place sometime on 2nd July, on which day the sitting bird constantly raised up to look beneath its breast. It was at this time that I suddenly realized that the male was missing and I began to fear for his safety. Indeed he was never seen again.

Next day dawned with a raging gale from the nor'west, sheets of rain and a sudden drop in temperature of 12 degrees. With foliage being stripped wholesale from the lashing branches there began for me a most harrowing few hours. Again through binoculars I could see the little hen deeply snuggled in the nest which was already fraying dangerously where a large leaf was chafing the underside. Every fifteen minutes or so she hurried to the aviary looking very unhappy and harassed, gulped a few mouthfuls of nectar before dashing back to brood the tiny young. She was plainly distressed and returned again and again to the captive male, calling frenziedly from the aviary, as if appealing for his assistance in her plight. Obviously disaster was close at hand for if something was not done quickly the young would perish either from starvation or exposure. Without a second thought I decided to release the second male in the faint hope that he might at least give the female some comfort by his near presence. Imagine my delight when, despite three years of frustration and being deprived of all the preliminary rituals, this devoted little bird not only accompanied the female back to the nest but unhesitatingly started to alternately brood and feed his rival's offspring. My relief could hardly have been less than the White-Eye's.

Rearing continued apace and nest sanitation was meticulous. Hurried examinations of the nest on the 5th and 8th July, revealed one nestling and an addled egg and then just the nestling in pin-quill stage. The unhatched egg, pale blue and unmarked, had disappeared.

On 10th July, the nestling's head was visible over the rim of the nest while feeding was in progress and on the 13th, the chick left the nest during another gale and was discovered sitting in a bundle of pea-sticks beneath the tree. The juvenile plumage was as brilliant as that of a wild-caught bird but lacking the white "spectacle", the orbital area being naked greyish skin.

The bill was orange-horn, gape-flange yellow, mouth orange and legs flesh-pink.

Its hunger call was the faintest echo of the adult's familiar *cheer*. Both incubation and fledging periods were thus approximately ten days each.

The old birds were very concerned when I rescued the youngster and perched it safely in an overhanging *Syringa*, fussing around with shrill tittering alarm notes and bringing it small spiders, one at a time, which continued to form the bulk of its diet. That night it climbed still higher in the bush and slept sandwiched cosily between its "parents". Next day they kept trying to entice the chick to fly across the lane and into the tall beech trees beyond, but returned each time the mite protested at being left alone. On the 15th, however, only forty-eight hours after leaving the nest, it *had* attained a perch 50 feet up in the big trees, which must have entailed an *upward* flight of at

least 20 yards to the lowest branches, an almost incredible feat for such a minute and inexperienced creature. There it stayed until 22nd July, when it accompanied the adults back to the garden, its tail three-quarters grown, the orbital ring pale yellow, its bill darkening and legs already tinged with grey.

Even when it had been out of the nest for ten days the old birds would lean over and peer expectantly beneath the chick's tail after each feed, delicately removing the faecal sac or gently prodding its vent when nothing was forthcoming.

At this time the female disappeared and never returned, the youngster and its step-father remaining together till the 16th August, when they too vanished.

It is a sad end to the story. I am convinced that none of them went away but they may have drowned in a nearby water-butt or been caught by some lurking cat. Be that as it may, I now have two new, true pairs of White-Eyes and, all being well, I hope to repeat the experiment in 1962.

* * *

BREEDING OF PINK-FOOTED GEESE

By A. W. S. DEAN (Grantham, Lincolnshire, England)

(*Continued from Volume 66, No. 3, page 121*)

Further news of the Pink-footed family. Towards the end of 1959 the brood of four became very much more spread. The goose would seem to be much more on watch than the gander, but the gander moves other Pink-footed and Barnacles on when the brood wishes to go where they are.

21st December, 1959.—Gander on watch to-day. It would seem that goose and gander take turn about on watch, changing over every few days.

29th December.—The 1957 gander goes with old goose No. 1 (born previous to 1939) and always calls loudly when he loses her: she is very fond of sitting quietly in the sun or out of the wind, he seems at times to forget where she is.

9th January, 1960.—Pink-footed goslings as well as their parents chase the other Pink-footed if too close to them, the goslings have light coloured tips to their primaries. All the geese show preference for soaked lucerne nuts over potatoes, the Wigeon are the same, also the Pintail. They were all reared with a lot of lettuce and still show a preference for it.

4th March.—1957 gander interested in 1959 goslings, joins up with them when they are away from their parents, a 1959 goose joined him.

The Pink-footed groups now seem to be : parents and three goslings, non-breeding paid and old lady, 1957 gander and 1959 goose, the two gay youngsters. When they are parted she makes a lot of noise and gets very agitated.

8th March.—Very cold. Gay couple not so much together but goose not with brood.

9th March.—Brood all together again.

4th May.—Barnacle goose sitting, Barnacle gander very aggressive, but Pink-footed breeding pair stand up to him. Goslings don't get very flustered.

9th May.—Pink-footed gander of breeding pair tends to move the goslings on a bit.

14th May.—Non-breeding Pink-footed gander chases off 1957 gander from non-breeding Pink-footed goose. He is not allowed within yards.

17th May.—Non-breeding Pink-footed goose making scrape ; goslings much more independent if apart from parents.

29th May.—Breeding Pink-footed goose looks as if she might lay.

30th May.—Has she been on nest ?

1st June.—Believed to have been to nest, exactly same place as last year.

4th June.—Been to her nest again. 7 p.m. gander near nest. Neither nest nor goose visible—gander apparently guarding water entrance.

5th June.—Goose on nest, gander beside her. Non-breeding goose is still making scrape.

8th June.—Wigeon duck on pond with young. She tried to make them dive by pushing them under.

10th June.—Old lady Pink-foot laying, not far from Barnacle nest. Barnacles hatched 1st June.

12th June.—Old lady on nest. No gander ever seen near. Another Wigeon on pond with young, much better mother. It would seem that parents differ a great deal in their capabilities. Hatching and rearing under hens one never finds this out and may well be building up doubtful strains ; this does not happen in nature.

14th June.—The gay youngsters together again by themselves. Old lady on nest most of day—down seen.

19th June.—Old lady off nest, has been pecked on head, she never went back to nest, but was all right in herself. I am suspicious she was disturbed by Barnacle gander, as she never had a gander near her. There were four eggs in the nest. I think all these eggs were clear. Again hatching under hens as against nature. If you do have a gander and goose and they are not a true pair, the eggs, if any, will not be fertile ; further the gander may be a bad husband and not protect the goose, doubtful results unless you have only one pair. With regard to the old lady and 1957 gander, I now feel she was only a mother to him. You will remember from my first write-up in Vol. 64, No. 3, page 94,

that she would not leave the goose with the two young and acted as nurse-maid. The 1957 gander was the young one that was reared.

20th June.—It is interesting that the Barnacle gander never sat near the goose when she was sitting, always some distance away. However, if anything went near her he was at once on the spot and chased the intruder off; as in the past, he now stands some distance from the brood if he gets the chance.

30th June.—Primary moult now seems general with non-breeding Pink-footed 1957 and 1959 goslings. Ganders start moulting first, non-breeding goose never got any further than a scrape.

3rd July.—1957 gander back with old lady, still wants company.

4th July.—10 a.m. Pink-foot goose has two goslings. During hatching sat closer than last year, more geese on pond possible reason.

11 a.m. 1957 and 1959 very noisy.

12.30 p.m. Pink-footed and brood moved from nest, gander leads movements, very slow. One egg found below nest contained fully developed gosling. It must have fallen out within last few hours. 1957 and 1959 goslings rather like children, they know something is on, necks stretched out and trying to see.

5th July.—Goslings have found mash in trough. I find the ducks and geese get their young there very quickly indeed. The odd one that does not is a bad mother in other ways as well. The Pink-feet have re-grouped, parents and two young, non-breeding pair and old lady, 1957 and 1959 goslings.

6th July.—Breeding Barnacle moulting primaries.

11th July.—Breeding Barnacles no primaries left.

15th July.—Breeding Pink-footed goose has lost primaries.

23rd July.—Caught and clipped wings of Barnacle goslings; very little blood in primaries. When catching goslings to clip wings, I find it pays to let the whole brood lose together, otherwise they are very frightened for several days and might get lost in a very big pen.

1st August.—Caught three 1959 Pink-footed and clipped primaries, these were of correct colour. One no blood, two had a little. One 1959 flew out. It seems almost certain that geese do fly with a small amount of blood in primaries.

5th August.—Pink-footed returned.

29th August.—11 a.m. caught one Pink-footed 1960 gosling and clipped wings. The other, and the 1959 full wing gander, flew out; both flew well, but were back by 2.30 p.m. Both these geese went out of sight round covert corner, they must have gone 300–400 yards. The 1959 bird was very soon back on high ground and flew in very shortly afterwards. The gosling flew over road and I could not find it at first until I looked over the hedge on far side of road and found it walking up and down the hedge. It would not face the hedge, traffic? I walked it nearer to a gap, got too near and it jumped up

and was blown 150 yards further away. This happened two or three times, but it always walked back in the direction of its home, though I could not hear the others calling. Eventually it jumped and flew right over some high trees and flew towards home. It was raining hard as I went home. I could not see it and had lunch. After lunch it was outside pen, I went to it, it jumped up and flew in. I have found that generally speaking when you have full-winged young birds, first time out they don't fly in but walk to netting on pond-side and are fairly easily picked up. Second time out, they jump nine times out of ten.

28th November.—I have had to part with the Barnacle as I want to continue with the Pink-footed and have too many geese for the area. Before I took out the Barnacle, the Pink-footed were the master birds and I had to feed the Barnacle to themselves. Pink-footed now much like a wild flock, take very little notice of wild Pink-footed flying over—just call to them. This has been a good breeding year, after the 1959 dry summer. End of 1960 summer wet, also autumn. What of 1961?

11th January, 1961.—Pink-feet now very settled.

12th February. Parents are now seen rather more on their own. They don't look after goslings as much as they did, in fact the immature birds seem to have formed a flock of their own. The mature ganders are a lot more talkative, in general the geese are behaving as if they soon will think about migrating. 1957 gander at times goes with 1959 goose again.

25th February.—Ganders have been chasing each other quite a bit. The 1957 gander has collected the two 1959 geese and chased off their two brothers.

29th May.—Have breeding pair Pink-footed geese started to nest?

31st May.—9.30 a.m. goose sitting very near nest. 5.30 p.m. on nest.

1st June.—Goose on or near nest most of day.

2nd June.—Goose on nest all day.

10th June.—Old lady Pink-footed goose laying. Nest about 6 feet from 1960 nest.

14th June.—She was on nest all to-day.

26th June.—Non-nesting Pink-footed just started to moult primaries.

29th June.—Breeding pair of Pink-footed may be hatching out young.

30th June.—5.30 p.m. Did I hear a little goose cheep?

1st July.—9.30 a.m. Breeding pair with four goslings some distance from nest, one a little weak last hatched? All the eggs hatched.

3rd July.—Parents with goslings very near old lady goose who is still sitting.

4th July.—Parents with goslings hang very much to old lady—goslings have been under her. In the evening she was on the pond

with parents and brood. Later still she was in the nest with one gosling. I put her eggs under a hen.

5th July.—8.15 a.m. Breeding pair on pond with three goslings, old lady on pond with one gosling. She goes as far as taking her gosling to another food trough.

3.30 p.m. They have all got together again. I cannot now tell the weakly gosling, but believe it is the one that the old lady claims.

6th July.—Situation much as yesterday, sometimes all together, sometimes two parties.

7th July.—Still the same situation. Parties may at times be a long way apart.

8th July.—As before, old lady had not plucked all her down off for nest, it was loose and got in her gosling's mouth. I had to remove some once or twice.

9th July.—As before.

10th July.—Goslings all with parents. Old lady may, or may not, be with party.

11th July.—As above.

12th July.—Old lady now seems to have left the party, except that she looks after stragglers.

15th July.—All Pink-footed including parents and goslings can now be found together.

16th July.—Old lady's eggs opened, two clear, two rotten !

19th July.—Mother of brood has lost primaries.

21st July.—Old lady has lost primaries.

29th July.—Caught and wing-clipped geese—the two 1959 ganders both flew, but only onto the pond.

20th August.—The two full-winged Pink-footed now fly well, but they go no distance and don't often take the air.

16th October.—Goslings now leave parents quite a bit and can be found feeding with other geese at times.

THE CAPTURE AND MAINTENANCE OF HUMMINGBIRDS FOR EXPERIMENTAL PURPOSES

By ROBERT C. LASIEWSKI, Department of Zoology, The University of Michigan, Ann Arbor, Michigan

Early efforts to maintain hummingbirds in captivity were only partially successful, since the birds invariably succumbed after short periods. The problem was mainly a nutritional one, resulting from the use of diets composed entirely of sugar or honey solutions. Addition of a protein component made it possible to maintain hummingbirds for longer periods, and records of individuals of several species living over five years in captivity are relatively common today (Ruschi, 1949 ; Cordier, 1952 ; Reventlow, 1953).

Hummingbirds are among the smallest warm blooded animals in the world and deserve more physiological investigation than they have received. The few studies available on these animals (Odum, 1941 ; Pearson, 1950 ; Howell and Dawson, 1954 ; Bartholomew, Howell, and Cade, 1957) reveal interesting properties such as nocturnal torpidity and high metabolic and heart rates, but the data are based on a limited number of birds of but three species. Several of the birds included were obtained under purely fortuitous circumstances. No effort has been made to utilize large numbers of hummingbirds over extended periods of time in physiological experimentation.

During the past two years, I have been studying the physiology of hummingbirds which have been maintained under laboratory conditions. Most of the seventy-odd birds studied in the laboratory were captured in southern California and transported about 2,500 miles by airplane to Ann Arbor, Michigan. Among these birds are representatives of the following species : *Calypte anna*, *C. costae*, *Selasphorus rufus*, *S. sasin*, *Archilochus alexandri*, *A. colubris*, and *Stellula calliope*. Our understanding of the biology of these smallest of birds will benefit from more intensive study. In the interest of encouraging others to utilize hummingbirds in experimental studies, this report is presented on the methods employed in capturing these birds and maintaining them in the laboratory.

The hummingbirds were captured with nylon mist nets of 1-inch mesh (Bleitz Wildlife Foundation), at regularly established feeding stations or in natural plant associations frequented by these birds. Hummingbirds are creatures of habit ; a given bird often using the same perches and the same flight paths in an area. By careful observations, one can discern the major flight paths used by most birds. Paths that lead between bushes provide the most suitable sites for the placement of nets, since the birds often fly along these at considerable speeds.

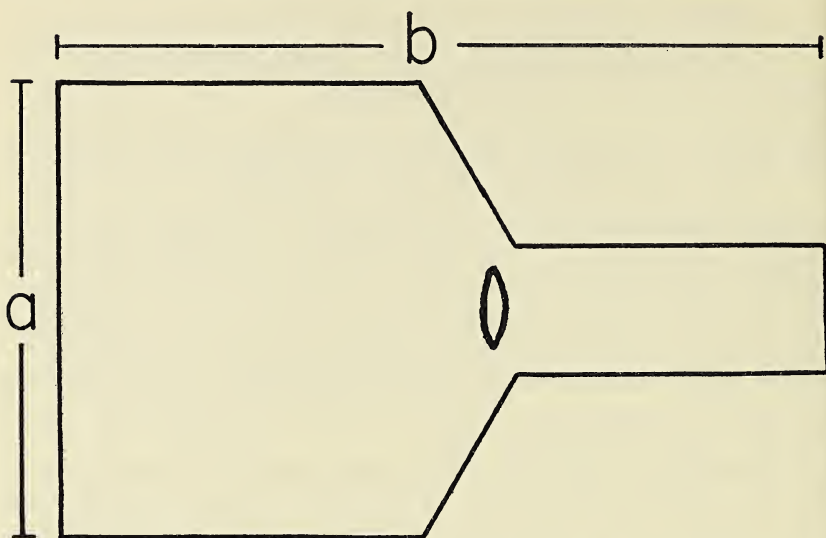


FIGURE 1.—Flannel jacket for transporting hummingbirds. Approximate size for *Stellula calliope*, $a = 2\frac{1}{2}$ ", $b = 4$ ", for *Calypte anna*, $a = 3$ ", $b = 5$ ". Hole must fit tightly over head of bird.

Usually the mist nets are set before dawn, when the shadows of early morning make them less visible to flying birds. In full daylight, the birds will rarely fly into a net unless frightened into it or distracted by another bird. With properly placed nets, it is not unusual to capture considerable numbers of birds within one half hour after sunrise. Often one is even able to capture a desired individual by observing the birds in a given area and placing the nets accordingly.

Individual flannel jackets (Fig. 1) are prepared in advance of procuring the birds. The sizes of the jackets are determined by the size of the hummingbirds which are sought. The size of the head hole is of particular importance, since a jacket that does not fit snugly over the head may allow the bird to work its way out of confinement. The birds are secured in jackets by straight pins (Figs. 2 and 3). Both Ruschi (Greenewalt, 1960), and Bleitz (personal communication) utilize jackets for transporting hummingbirds, but theirs are of different design.

Hummingbirds struggle little when their wings are restrained and they can be transported long distances in their flannel jackets without disrupting their feathers. They appear to adjust quickly to their situation and will accept food readily. Restraint by this method is certainly preferable to allowing them to fly in a small space during transportation where they often dash themselves against the walls and arrive at their destination in poor condition.

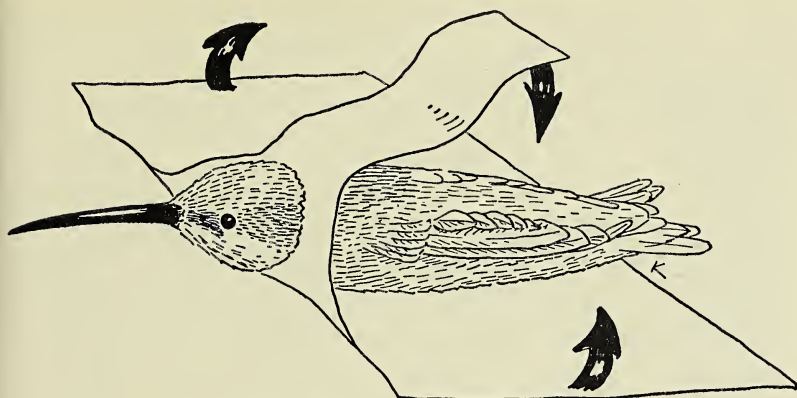


FIGURE 2.—Placing hummingbird in flannel jacket.

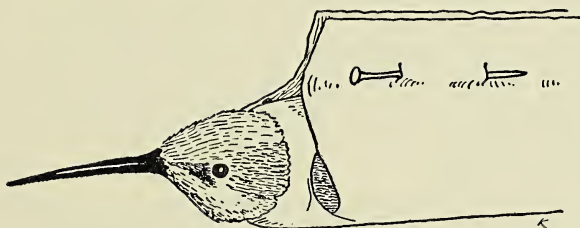


FIGURE 3.—Hummingbird in flannel jacket.

In order to facilitate the handling of a large number of birds, I constructed a balsa wood carrying case (Fig. 4). The case is equipped with a sliding door and screened openings for ventilation. The individual compartments are 1 by 1 by 4 inches for the species of hummingbirds from California. The birds can be "filed" away as they are caught, and with appropriate notes one can easily keep track of each bird until it is banded. The case is constructed so that the compartments slope upwards toward the front, when it is on a level surface. This prevents the birds from falling out of the case, if they struggle. The handle is mounted off-center on the top of the case so that a similar slope is maintained while the birds are being carried.

During transportation, newly captured birds are given sugar solution through a syringe fitted with a piece of glass tubing (inside diameter, 5 mm.). If the birds have been in captivity and are accustomed to a protein solution, I offer this to them instead. They usually eat greedily, often reaching down or over with their bills to steal a snack, while a neighboring bird is being fed.

Although fourteen hours is the longest period I have confined the birds in jackets (Riverside, California, to Ann Arbor, Michigan, 1960),

I see no reason why they could not successfully be confined for longer periods. With the changing of soiled jackets and regular feedings, one could probably maintain them in good condition for several days.

In the laboratory, the birds are housed in *Drosophila*-tight cages (Fig. 5). Birds of seven species that I have maintained do quite nicely in cages 20 by 20 by 40 inches. Larger cages might be preferable for larger species. I keep from three to eight birds in a cage, and the cages can be partitioned into two smaller units. Tight-fitting doors and paneling of fine-mesh nylon curtain material suffice to keep the *Drosophila* from escaping the cages. The nylon curtain material is also soft enough to prevent injury of the birds and damage to their feathers, should they fly into it. The small (6 by 6 inch) doors are mounted bottom center at the front of the cage. The birds normally fly near the top of the cage and this door placement minimizes the possibility of birds escaping during the daily servicing of the cages. Each cage is provided with several perches of $\frac{1}{8}$ -inch wood doweling. Shallow dishes containing water are regularly available for bathing.

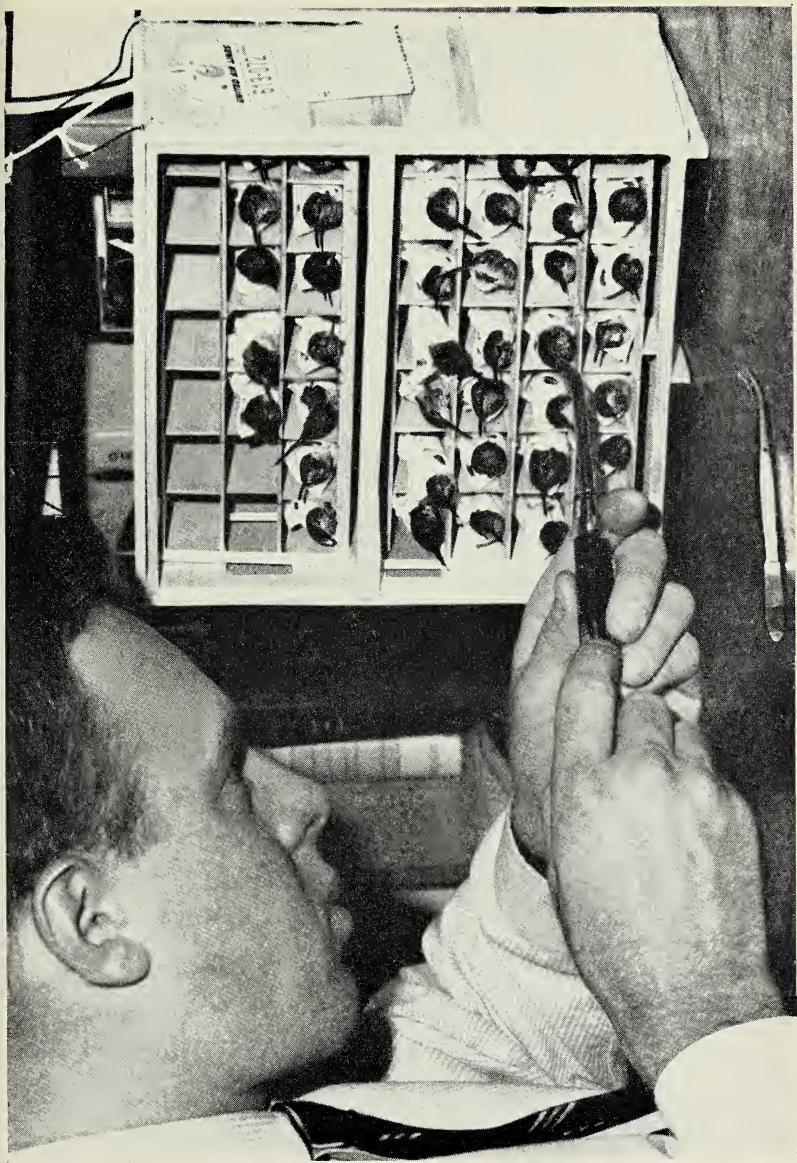
Two, and occasionally three, feeders are used in each cage. Since a hummingbird will sometimes claim one feeding area, the feeders should be widely spaced. An aggressive individual may completely prevent other birds from feeding, making it necessary to isolate the bird, or place it in with other bullies. Hummingbird feeders can be inexpensively constructed from test tubes, rubber stoppers, and glass tubing with an inside diameter of 6 or 7 mm.

Hummingbirds should have food available to them constantly during their waking hours, because of their high metabolic rates. I have successfully maintained them using either of two diets.

Diet 1. Sugar solution (1 part sugar : 3 parts water) available at all times and a minimum of 20 *Drosophila* for each bird per day. The hummingbirds I have maintained weigh 1.9–5.7 gms. Larger birds would require a larger daily supply of insects.

Diet 2. Protein solution during day ($1\frac{1}{2}$ tsp. Mellin's Food, $1\frac{1}{2}$ tsp. Ledinac, 3 tsp. Evaporated Milk, 8 drops Vipenta, $\frac{1}{4}$ pint granulated sugar, red food coloring, the mixture diluted to one pint). Sugar solution (as used in Diet 1) during night. Hummingbirds do not feed at night but it is impractical to change feeders at dawn and dusk. Since protein solution may spoil, the use of sugar water assures a supply of unspoiled food at dawn. The red food coloring (Quaker brand) acts as an indicator, losing its color if the protein solution spoils. Both the day and night solutions are made in large batches and kept in the refrigerator. Evaporated milk should be from a newly opened can, since older milk hastens the spoilage of the solution.

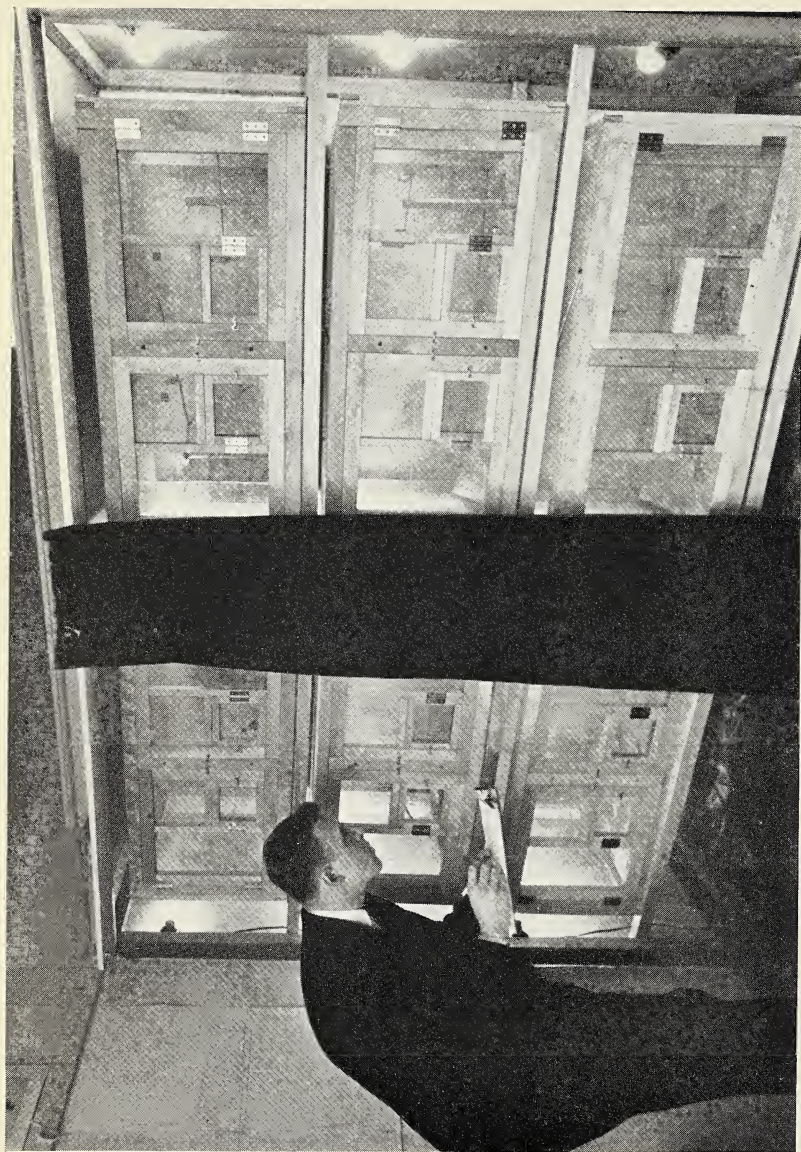
I often supplement the protein sugar diet (2) by releasing available *Drosophila* in the cages. The fruit flies are hunted by the birds, thus providing a useful form of exercise in addition to nutritional value.



Copyright

John Alley

FIGURE 4.—The author feeding hummingbirds that are confined in their flannel jackets and filed in the balsa wood carrying case. Sliding door has been removed from front. Note that the carrying case slopes upward toward the front.



Copyright

FIGURE 5.—Six of the cages used for maintaining hummingbirds in the laboratory. *Drosophila* are prevented from escaping by use of tight fitting doors and fine mesh nylon curtain material to cover the panels of the cage. Large black object is a corduroy drape which is used to maintain darkness in the cages should the lights in the room be turned on at night.

[Doug. Fulton

However, the birds do perfectly well over long periods without any *Drosophila*. G. Davall, of the New York Zoological Society, considers fruit flies useful but not essential in maintaining hummingbirds (personal communication).

Illumination is provided by daylight and 100 watt incandescent lights. The lights are controlled by a poultry timer, to maintain a daily photoperiod of twelve hours. Since these lights go off immediately, flying birds could be stranded on the walls or floor of the cages. I normally supplement the lights controlled by the poultry timer with a small room light or natural daylight, to allow the birds to settle. After the birds have settled, the cages are darkened. An automatic dimmer switch, as described by Reventlow (1953) would be useful here. Room temperatures are maintained at 68° to 76° F.

While the cages are large enough to allow adequate room for flight, I am able to reach into all portions of them through the doors with my hands. A selected bird is captured by hand, generally by trapping it against the wall of the cage. The bird is then confined in a flannel jacket or a small paper bag for weighing, depending on the nature of the experiment to be undertaken. Individual records are kept on body weights, moulting, etc.

Hummingbirds are surprisingly hardy creatures, and survive for long periods if their basic maintenance requirements are fulfilled. The forty birds I now have on hand require daily attention amounting to an hour a day. Unfortunately, one half of this hour falls in the early morning, the other in the late afternoon. However, hummingbirds are such charming and interesting creatures that the effort is amply repaid.

ACKNOWLEDGEMENTS

I am indebted and thankful to the following people, each of whom has assisted in making the capture and maintenance of hummingbirds possible :—

Dr. W. R. Dawson and Dr. H. B. Tordoff, The University of Michigan ; Dr. W. J. Gross and Dr. W. W. Mayhew, The University of California at Riverside ; W. R. Conway and G. Davall, New York Zoological Society ; D. Bleitz, Bleitz Wildlife Foundation ; D. T. Austin, United Air Lines ; R. Adams and R. Wright, Idyllwild, California.

My sincere gratitude to the following individuals for illustrations and photographs :—

Dave Klingener, The University of Michigan, Figs. 2 and 3.

John Alley, The University of Michigan, Fig. 4.

Doug Fulton, *Ann Arbor News*, Fig. 5.

REFERENCES

- BARTHOLOMEW, G. A., HOWELL, T. R., and CADE, T. J. (1957). Torpidity in the White-throated Swift, Anna hummingbird, and Poor-will. *Condor*, 59, 145-155.
- CORDIER, C. (1952). A better way to feed humming birds. *Avicult. Mag.*, 58, 143-5.
- GREENEWALT, C. H. (1960). *Hummingbirds*. Doubleday and Co., Inc. Garden City, New York.
- HOWELL, T. R., and DAWSON, W. R. (1954). Nest temperatures and attentiveness in the Anna hummingbird. *Condor*, 56, 93-7.
- ODUM, E. P. (1941). Variations in the heart rate of birds : a study in physiological ecology. *Ecol. Monog.*, 11, 299-326.
- PEARSON, O. P. (1950). The metabolism of hummingbirds. *Condor*, 52, 145-152.
- REVENTLOW, A. (1953). Experience during fifteen years with the feeding and management of humming birds in captivity. *Avicult. Mag.*, 59, 1-7.
- RUSCHI, A. (1949). Observations on the Trochilidae. *Bull. Mus. Biol. Prof. Bello-Leitao, Santa Teresa, Brazil*, No. 7. (Seen in translation prepared by C. H. Greenewalt.)

* * *

BREEDING THE DERBY FLYCATCHER

(Pitangus sulphuratus)

By CHARLES EVERITT (Trenton, New Jersey, U.S.A.)

This handsome yellow and chestnut-brown bird with a distinctive black and white head is more frequently referred to by British aviculturists as the Sulphury Tyrant or the Kiskadee. One of the larger members of the Tyrant Flycatcher family—Tyrannidae—their range is from Southern Texas down to as far as the Argentine.

Some 10 inches in total length, they are readily identifiable, in addition to their colouring, by their stout, strong bill, resembling more that of a Kingfisher than a Flycatcher, and their powerful legs. The sexes are dissimilar, the female having much paler underparts and the wings and tail are a dull brown as compared to the rich chestnut of the male. Further, they are slightly smaller in build.

Although to be found over a vast area in North, Central, and South America, it was not realised how hardy they really are until the pair owned by Mr. Boehm spent the entire winter of 1960-61, one of the severest in New Jersey for many years, in an open aviary with just a room to come into if they so desired. It is known that they did retire to this shelter normally in the evening in company with the Black-headed Sibilas, Red-vented Bulbuls, Blue-winged Sibilas, and several other birds, all occupying the same enclosure. However, during the day, snow or rain, frozen lake, snow covered shrubs and ground, there they would be found on some of the highest branches looking very arrogant with their upright stance and defying the world with their strong strident call.

This pair had nested in 1960, but the female must have been disturbed somehow or other for, after sitting for some eighteen days,

she finally deserted her eggs, three of which were found to contain chicks almost fully formed, the fourth being clear. They measured 23 by 17 mm. and were pale buff in main colouring with light fleckings in brown.

The nest, constructed entirely by the female with her mate bringing some of the materials, was made of coarse grasses, reeds, and twigs, the lining being of fine grasses and feathers. It was a dome-shaped structure measuring some 8 inches high and wide and about 10 inches in depth, with the entrance hole low down on one side. It had been built in the fork of the branches of a pine tree overhanging the waterfall, but faced away from the fall and the lake.

Although the nest had stood up well during the winter months, in May, 1961, the female rebuilt it at the same site. Again four eggs were laid and incubation appeared to commence with the laying of the second. Both birds tended the eggs, but it was not discerned if they took definite periods of the day or just sat indiscriminately. It is known that the female usually was to be found on the nest first thing in the morning for it became quite a hazardous affair taking around the morning feed. As soon as anyone approached the nesting area the male would dive on them and, after one or two scratched heads, it was deemed advisable to wear a hat when necessity called for a visit to that particular end of the aviary. His belligerency was not confined to humans for he was relentless in chasing away any bird that approached his tree. However, he did not pursue them once they had sheared away and no steps were taken to remove any of the other inmates as it was considered, and subsequently proved, unnecessary.

On 28th May, nineteen days after the laying of the second egg, the female was seen to be gathering up the mealworms fed to her and taking them to the nest. Due to the number of birds in the aviary, some sixty or so, and the fact that some of them were also raising families, it was decided to set up a separate live-food tray for the Kiskadees. This was a venture that called for stout headgear and rapid action. However, whilst it was being placed in position the opportunity was taken for a quick peep into the nest. True enough there was one chick. Two more were hatched during the next two days, the final egg being discovered later to be clear.

Now the male was more aggressive than ever although he never actually attacked when the live-food was being placed in their tray. It was during the approach to, and the retirement from, the region that the attacks took place. No attempt was made to re-examine the nest for a further five days and then a swift look at the young birds showed that they were covered with a white down. At this visit both birds were so disturbed that it was decided to leave them strictly alone in future.

On 19th June, one chick left the nest and was flying strongly almost

immediately. It was a counterpart of its female parent except that the underparts were much paler, almost white, and the crown of the head was brownish, as compared to the black of the adults. Since neither parent paid any further attention to the nest but assiduously attached themselves to the fledgling, a final look revealed that the other two chicks had died in the nest. It was assessed that they had been about five to six days old. The fourth egg was clear.

The young bird became independent twelve days after leaving the nest, that is at about five weeks old, but still consorted with its parents. By this time the crown of its head had turned black and the underparts had taken on more yellow in their colouring. At three months old it had moulted out and shown that it was a male. This fact was made apparent not only by its colour, but also by the fact that the adult male had now begun to chase it. To avoid any catastrophe, it was caught up and placed in an adjoining aviary where it spends most of the day calling to, and being answered by, its parents.

Although the pair constructed another nest in one of the nest-boxes positioned principally for the starlings, no further eggs were laid that season. Nevertheless, whenever anyone goes near to this nest, even during the winter, as it is at the time of this report being written, he dives on them and even strikes now and again. It is to be hoped that they will use this site next year for, from the observation aspect, it is far better positioned than the original one was.

So far as I can ascertain from the breeding records I have been able to examine, this breeding of the Derby Flycatcher by Edward Marshall Boehm is the first of its kind in captivity in a private collection.

* * *

AN INTERESTING HYBRID AND OTHER BIRDS BRED AT PORTOLA VALLEY IN 1961

By A. H. ISENBERG (Portola Valley, California, U.S.A.)

For the past several years my Japanese *Turdus cordis* had been rearing one to five young per year out of several nests (usually three per season). This year, unfortunately, the female Lesser Bird of Paradise killed the sitting female *Turdus cordis*. Last year one male and three female *Turdus cordis* were reared and it was one of these young females that was released into one of our largest aviaries, that mated with a Mexican *Turdus grayi*. Three young were reared from the first nest but none from the next two broods. Mites killed the second lot and the third lot (all in the same nest) left the nest but disappeared. I had sprayed the nest with mite killer after brood number two succumbed.

The first three young were taken and hand-reared after they had left the nest.

Two females and one male was the result of this breeding. The young male is rather pretty, having very dark, almost black wings, an almost white belly with speckled breast and some russet about the face, back dark grey.

A male *Turdus cordis* is a very pretty bird with white belly, black wings and upper parts, and a song that ranks with the world's best. I remember my much missed good friend the Marquis Hachisuka telling me he made special trips to the slopes of Mt. Fujiyama just to hear *Turdus cordis* sing in the spring. It will be interesting to learn what kind of song this hybrid will have. The male *grayi* has a rather plaintive song, not nearly as rich as his all brown cousin, often caged in Mexico and called by the Mexicans "Prima Vera", a fitting name.

Although these three young hybrids were hand-reared they have become quite wild. The male is separated from the two females as he is quite the bully.

The nest was rather typical of the race, leaves, grass, feathers, and mud—quite a compacted structure.

This large aviary, approximately 50 feet by 50 feet and 18 feet high at the highest point with shelter of 14 feet by 12 feet by 9 feet, contains Anis, Rollers, Bulbuls, Kildeer, Mexican Thrushes, Golden Oriole, Kiskadees, Mynahs, Glossy Starlings, Brazilian Cardinal male, Indian Shrike, Meadowlarks, Mesias, a Shearwater, etc.

One interesting thing was that the male Brazilian Cardinal helped feed the young hybrids. The male Mexican *Turdus grayi* did most of the feeding and would take some fourteen to fifteen mealworms at a time in his beak. He also fed meat and fruits.

Other birds reared in 1961 :—

Three Red-eared Bulbuls, a Black-headed Green Bulbul helped in feeding these young.

Five Common Babblers were reared.

Five Shammas were reared.

Struthideas had their usual many young in several nests, but none reared.

One "Loochoo" Robin reared.

One Jilguero (Mexican Brown-winged Solitaire).

* * *

RANDOM OBSERVATIONS IN A WATERFOWL COLLECTION

By MARK VINSON (Kingsbridge, S. Devon, England)

I present the following article, in which I record various observations, which I have remarked in my waterfowl collection, with some diffidence, since I feel they are probably well-known to the experienced breeder. But I cannot remember reading about these various points in the literature available, so I hope they may be of help and interest to other beginners.

1. INDISCRIMINATE NESTING

The books tell one about the intense secrecy maintained by ducks when going to nest and describe the way each one will steal away to its chosen site, which it keeps strictly to itself. My birds, however, in spite of having ample nesting cover and plenty of nesting boxes, fly in the face of convention and the expert, by ganging-up together and by using a different, and, mark this, communal nest each day.

Thus, a fat Red-crested Pochard will squeeze herself into a low-placed barrel designed for a Carolina, whilst I watch trembling from afar, fearing incipient prolapse. When she has laid perhaps a Carolina will take possession, guarded by her mate, while, outside, other anxious females, such as Chiloe Wigeon and Mandarin, stamp impatiently up and down awaiting their turn. Finally, probably in the afternoon, both male and female Fulvous Tree Duck enter and have a fine time rolling all the various eggs around until the female has added her share to the nest-full.

Next day, this behaviour will be repeated at another site, even though I have left the nest and eggs undisturbed. Needless to say, this behaviour makes the consequent sorting-out of eggs into clutches of the same species or similar length of incubation period somewhat difficult. I only wish my birds would read the authorities.

2. MOULTING PATTERNS

When certain species of diving ducks are emerging from eclipse the new feathers first appear on the belly and gradually spread up the flanks. This is particularly noticeable in Tufted and Scaup, with whom one can see the slow spread of the gleaming new white feathers forming a definite "Plimsoll Line", which rises up the bird's flanks until only those plumes covering the wings are left in the muddy eclipse colour. This pattern is not followed so strictly by juveniles moulting-out from first feather. With them, the line of demarcation is much more broken and patchy.

Surface-feeding species, too, put on their motley much more at random.

3. ADOLESCENT SURFACE-FEEDERS ASLEEP

I noticed that all my young Chiloes and Shovelers, at the age when they were assuming their first feather, habitually slept on the water in "rafts", after the manner of adult diving ducks. This habit ceased as the birds grew older and they then slept on the shore like their elders.

Might this not be a form of self-preservation since they had not grown their flights and were thus less able to make a quick escape from a predator?

4. COPULATION WITHOUT SUBSEQUENT LAYING

This is a section strictly for the beginner! Do not let your hopes be buoyed too high when you see the females of your rarer breeds inviting and receiving coition from their mates. Even though they may get as far as peering excitedly into nest-boxes or making "scrapes", it is probably nothing but a snare and a delusion nine times out of ten and will result in nothing but a sad disappointment for their owner. The acceptance of the drake's attentions does not necessarily indicate that ovulation is commencing.

5. THE INCUBATION PERIOD OF FULVOUS TREE DUCK

Though I tremble to dispute the undoubted authority of M. Delacour, who states in his authoritative work on Waterfowl that the incubation period of the above is thirty to thirty-two days, I have found with three clutches of eggs sat from two females that the time of incubation was invariably twenty-three to twenty-five days. I keep a most careful record and know there was no error since I was caught unawares by the arrival of the first brood and did not wish to be found without a good supply of pond-weed for the ducklings again.

Might this be a peculiarity of my strain of Fulvous? I would like to know other breeders' experiences.

6. INDIAN TREE DUCK (*Dendrocygna javanica*)

This is a delightful little species, the "bantam" of the Tree Ducks. They become very tame, though presumably wild-caught, and are well able to take care of themselves in a mixed collection because of their voracious appetites. Mine are insatiable for their food, gorging until their crops are pendulous and furiously pecking and "nattering" at any bird, even if it is as large as a Philippine Duck or Wigeon which may stand where they wish to feed. These last always give ground to the much smaller Tree Duck. Even the bossy Fulvous are forced to move, though they are twice the size.

Indian Tree Duck often swim unusually low in the water, reminding one of the "neck-awash" habit of the Red-throated Diver. They are not nervous when they do this, nor does their plumage lack oil, to judge by the plum-like "bloom" on their backs.

6. CONCLUSION

My final proposition may, I fear, cause cries of horror from more purist keepers of waterfowl than I. It is that I do wish that there was some way by which the wearisome period of dull eclipse plumage could be shortened without detriment to the bird. Where a collection of ducks is kept for public exhibition or for the sale of young stock, as well as for their owner's unceasing delight and worry, it is so unsatisfactory, for all parties, that he has, throughout the summer, to perform a continual "Ruth Draper" act, when describing the potentially fascinating colours of some drab drake, by exclaiming, "Oh, but you should see how magnificently decorative this Mandarin (or Common Pintail or Falcated Teal) will look in the winter and spring!"

Unfortunately, in Britain, the summer is the season when it is most pleasant for people to view the collection and admire the antics of the birds. In the late spring strangers must be forbidden the enclosure because of nesting activities, and in the cold winds earlier in the season only your real enthusiast is happy to stand and stare—and he needs no elucidation anyway!

All Curators of collections in urban parks must have had experience of this problem; so will those breeders who have had to recourse to an unsatisfactorily coloured illustration when displaying their birds to a potential customer.

Might not an injection of some sex-hormone do the trick?

* * *

FURTHER NOTES ON THE GOLDEN-SHOULDERED PARRAKEET

(*Psephotus chrysopterygius* Gould)

By ALAN LONDON (North Adelaide, S. Australia)

Further to my article on the Golden-shouldered Parrakeet published in AVICULTURAL MAGAZINE, Vol. 66, p. 90, some breeding results may be of interest. A clutch of four eggs was laid in mid-September, 1960, three were fertile and hatched on 12th October, but all the young birds died within the first week. This year (1961) the first egg of a clutch of five was laid on 29th August: three young had hatched on 23rd September and all five by the following day. The first young bird left the nest on 28th October, two more the following day, and the last two the next day. All are now independent and in fine shape. They closely resemble the adult hen on leaving the nest but those I believe to be cocks have a considerable amount of turquoise on the cheeks

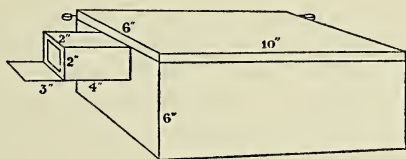


Copyright]

[Mathees Boer

THE NEW "WALK-THROUGH" AVIARY AT WASSENAAR ZOO.

and, surprisingly, a greenish frontal band, whilst the hens have very little blue on the cheeks and a distinct yellowish frontal band. All have a well marked dark brownish cap which becomes black in the adult



male and remains distinct in the adult female. Apart from Sir Edward Hallstrom's many successes with the species, this is the only recorded breeding in captivity ; the possessor of another pair in this state has had the misfortune to lose a clutch both last year and this. From the time the young hatched, the hen seemed to brood them very seldom, quite unlike the habit of their close relative the Hooded Parrakeet. The breeding took place in a nest-box supplied by Sir Edward, this being the only occasion that I have bred parrakeets in other than a hollow log ; the dimensions are shown in the accompanying sketch.

* * *

A NEW AVIARY AT WASSENAAR

Members who have visited the Wassenaar Zoo will have seen the Louise Hall in which a fine collection of birds is housed, most of them in large aviaries, and where the Red-billed Hornbill, South African Stone Curlew, and other species have been bred.

At the end of this hall the pathway leads through high rockwork and one comes into a very large, new outdoor aviary, the accompanying photograph giving some idea of the size and general design. Visitors to this "walk-through" aviary pass under cover through its whole length, retracing their steps to go back into the Louise Hall, the darkened entrance formed by the high rockwork preventing the escape of the birds.

The aviary is so shaped that the higher trees and shrubs can be grown at the back and the purpose of the strong framework is to withstand the weight of snow, which, over so large an area of roof, might be considerable. A low retaining wall keeps visitors to the pathway. Pheasant-tailed Jacanas, Argentine Lapwings, Egyptian Plovers, Turacos, Red-headed Marsh Birds, and Tanagers were among the birds that I especially remember seeing in this splendid aviary.

J. J. YEALLAND.

FOREIGN BIRDS AT THE NATIONAL CAGE BIRD SHOW, OLYMPIA

1961 again showed an increase in foreign birds at the National, and, what is perhaps even more encouraging, a considerable increase in the number of foreign exhibitors—by which I really mean the number of exhibitors showing foreign birds. On the whole I thought the seed-eaters rather dull ; plenty of good specimens but few rarities. What struck me particularly was the absence of any Gouldian Finches except for a single one in the class for abnormal coloured birds ; now that Gouldians are practically domesticated, one would expect to see plenty of good ones at the National and I missed their brilliant colours.

What really did attract me were the three cages of fine parrot-finches on show ; the President of the Danish Budgerigar Society, W. Langberg, showed two pairs bred by himself—a really lovely and perfectly matched pair of Peale's taking first place and the award for best small seedeater and a pair of Blue-faced second. The third pair, Red-faced, belonged to Messrs. Hunt and Davis.

I was also very taken with a bright little pair of Blue-billed Waxbills shown by I. Whitehouse ; these came second in their class to M. Coles' charming pair of Fernando Po Mannikins.

Mrs. Draper's handsome Yellow-bellied Grosbeak won its class and the award for best large seedeater. The class for " All other small seedeaters " was most attractive ; this was led by J. Howard's Rhodospingas and also contained Schlegel's, Verreaux's, and Green Twinspots, Rosy-rumped Waxbills, a Many-coloured Ground Finch, Blue-capped Waxbills, Yellow-faced Grass Quits, and several Pytilias. The " All other large seedeaters " class consisted of only one entry, J. Howard's Yellow-billed Sparrow.

I liked G. Whitmore's smart little pair of Firefinches, C. Varney's St. Helena Waxbills, K. J. Lawrence's Black-tailed Lavender Finches and Mrs. Scamell's Yellow-breasted Bunting. J. Howard was showing a pair of Red-crested Whydahs which I thought interesting, but they were not quite ready and I wondered if they were a true pair.

The " softbill " section was quite delightful with many new species on show. Outstanding was Mrs. Scamell's Paradise Flycatcher which well deserved to win best foreign ; I think this is the first time that one has been shown in perfect feather. The hummingbird class had thirteen entries, most of which were present. This was won by E. C. Lewis' Violet-eared, in immaculate condition, followed closely by J. Forrest's Blue-chinned Brilliant, a White-breasted Emerald, a Heine's, and a Tufted Coquette.

Mrs. Scamell won the sunbird class with her very lovely pair of Yellow-backed ; second was R. E. Oxley's Orange-breasted. Others were a nice Bronze, Amethyst, Regal, Taccazze, and Malachite.

Sugarbirds were led by G. Anderdon's Red-thighed, a very steady bird in perfect condition, followed by Mrs. Scamell's Blue ; there were also several good Yellow-winged, Isthmians, G. Anderdon's Gurney's Natal and Ecuador Blue.

The class for small tanagers was won by E. Beale's attractive Euphonia, described in the catalogue as a "Bandalero", but more usually known as a Blue-backed Euphonia. In the same class were some nice Turquoise-naped Chlorophonias, a pair of Emerald-spotted, Schrank's, a Flame-headed, Scarlet-backed, and Silver-throats. Mrs. Scamell's pair of Formosan Black Bulbuls won the next class, followed by J. Forrest's Silver-blue Tanager, also several other species of large tanager, the Crimson-crowned, Yellow-rumped, Scarlet, and Blue Mountain, a Shama, and a Red-eared Bulbul.

The flycatcher class was a triumph for Mrs. Scamell who won the first six cards, all with outstanding birds. First came the lovely Paradise, then a rare Blue-fronted Redstart, a delightful Black-naped Flycatcher, a Snowy-headed Robin-Chat and a Daurian and White-capped Redstart. Seventh was R. E. Ridge's Natal Robin.

Mrs. Scamell then went on to win the thrush class with a very fine Blue-headed Rock Thrush, followed by J. R. Hayes' Hardwicke's Fruit-sucker and G. Anderdon's good old White-eared Jay-Thrush.

G. Whitmore's Amethysts won the starling class followed by some good Spreos, and the Mynah class went to Miss Leishman's Mandarins, followed by G. Anderdon's Common Mynah, wrongly described in the catalogue as an Indian Hill. The Toucan class was very fine, here again Mrs. Scamell won with her magnificent Toco, with J. W. Ranson's Buffon's Touracos second and G. Whitmore's Ross's Violet Plantain-eater third. I was also very taken with Hunt and Davis' Blue-bellied Hill Toucan and Hammond and Harris' Culminated Toucan, which I had not seen before.

G. Whitmore's Thick-billed Fruit Pigeons won their class over Mrs. Cook's Californian Quail, G. Anderdon's Mourning Doves, and two pairs of Chinese Painted Quail. With so many interesting pigeons and doves now on the market, I was sorry not to see more species staged.

The class for "A.O.V. small insectivorous" went to Mrs. Scamell's charming Red-headed Tits ; second came a much discussed entry of Mrs. Scamell's, catalogued as a Flowerpecker. One school of thought classified this as a Fiery-breasted Flowerpecker while others were convinced it was a sunbird. I am now told that it has definitely been identified as a Red-cheeked Sunbird. Third in this class was Mrs. Draper's well-known White-bearded Honey-eater and there were also some Banana Quits, a Coppersmith Barbet, Ixulus, Yuhinas, and Minivets. "A.O.V. medium-sized insectivorous" was also a good class, led by Mrs. Scamell's Fairy Bluebirds, followed by Mrs. Draper's

Red-headed Marshbird, A. T. Worrall's Brown-hooded Kingfisher, several pittas and barbets, Ruby-throats, a Baltimore Oriole, and a Mousebird. I particularly liked the Toucan-billed Barbet which, when the Show closed, accompanied "God save the Queen" in perfect time and quite good harmony. "A.O.V. large insectivorous" went to G. Whitmore's Rufous-bellied Mot-Mot, a bird of which I am very fond, with Mr. and Mrs. Humphrey's Red-billed Blue Magpies second and A. Clare's Bell Bird third. I also liked J. Howard's Lilac-breasted Roller.

In the "Parrot-like" section I felt that the parrakeet classes could have been much better filled; in fact I wondered if the prohibitive cost of rail transport had prevented many parrot-like from attending. There were some fine specimens on view but few "collector's pieces". L. Stevenson's Crimson-winged Parrakeets well deserved the Best Parrot-like award, as they were a fine pair and in sparkling condition. The Lovebird classes were quite well filled, best Lovebird going to R. Wyatt's nice pair of Abyssinian. The Lory, Lorikeet, and Hanging Parrot class was also good, this being won by G. Whitmore's delightful pair of Blue-crowned Hanging Parrots. I would like to have seen more hanging parrots, the only other exhibit being another Blue-crowned; in fact, I would like to see these charming little birds have a class to themselves, but unfortunately very few seem to be imported at present. There were some handsome lories in the same class, several Yellow-backs, a pair of Mitchell's and a Chattering Lory, also a pair of Swainson's Lorikeets. A. W. Bolton won the Cockatoo and Macaw class with his very nice Noble Macaws, with G. Anderdon's well-known Roseate Cockatoos second; another pair of Roseates, G. Anderdon's very tame Citron-crested and an Illiger's Macaw made up the class.

The first parrakeet class I thought most disappointing with only two entries, but both L. Stevenson's winning Crimson-wings and A. W. Bolton's Rock Peplar were well worth seeing. Again there were only two exhibits in the class for Grass Parrakeets, L. Stevenson's lovely Elegants and Hunt and Davis' Turquoisines could have led a much larger class. The Broadtail class was better filled, but only just, with four out of the seven entries staged. Here H. Willis' pair of Pennant's beat G. Anderdon's single cock Pennant's followed by a Golden-mantle and another pair of Pennant's. W. E. J. Tasker's pair of Cockatiels led a class of six. The class for all other long-tailed parrakeets was won by D. M. Coward's Malabar with Mr. and Mrs. Hooley's Tuis second, the rest of the class consisting of Ringnecks. Mrs. Draper's fine pair of Ruppell's won the parrot class from C. W. Desmond's Mealy Amazon, followed by J. P. George's Mealy Amazon, G. Anderdon's White-bellied Caique (which also won a card in the talking class), an Eclectus and a couple of African Greys.

The "Abnormal-coloured and hybrid" class was again won by

Mrs. Lewis' Swainson $\times$ Red-collared Lorikeet, followed by J. P. Boyt's Nyassa $\times$ Masked Lovebird. Here also was the only Gouldian on show, a black-breasted. I have seen this mutation before and personally I think it is not an improvement on the shining brilliance of a normal Gouldian. I liked very much the Bicheno's $\times$ Zebra and the Bengalese $\times$ Diamond Sparrow.

Last, but by no means least, I must make special mention of the delightful display staged by the Parks Department of the London County Council. The most devoted supporter of the National must admit that tramping round Olympia can be a weary and dusty business. The unexpected sight of a cool lawn and water garden, surrounded by tropical plants and shrubs, complete with an aviary of exotic birds and a pair of Flamingos standing in the pond, was a real refreshment and a memory to take away with one.

Obviously the visitors were fascinated with the display and a big crowd was to be seen there throughout each day. Some of the comments on the stately and impassive Flamingos were most amusing, such as, "Look, they're alive, I thought they were made of plastic!" or "What are they? Penguins?", "No, eagles!". The aviary contained a fine show of rare birds, all in magnificent condition, and including Raymond Sawyer's fine old Rothschild's Grackle, a Blue-shouldered Mountain Tanager, a pair of Macaws, Bulbuls, Starlings, and many others. This innovation was a touch of genius, and I hope it may become a permanency.

If these notes appear disjointed or incoherent, I can only plead that while writing them, my Caique has insisted on sitting either on my hand or on my shoulder, rubbing his head against my cheek or reaching for my cigarette. Once he nipped the lighted end and bounced off with an indignant squawk on to an adjacent chair where he sat looking reproachfully at me and saying "Bad boy, bad boy!". But this did not stop him coming back to interfere again.

S. M. ANDERDON

* * *

LONDON ZOO NOTES

By J. J. YEALLAND

A Maned Owl (*Jubula letti*) collected in Sierra Leone and, it would appear, the first record for that country, has been presented and is the first of this species to be in the collection.

It was first described in 1889 by Buttkofer from a specimen collected in Liberia and some years later Bates collected several in southern Cameroon. It has been recorded by Chapin from the Congo Forest near Luebo. It is the only member of the genus *Jubula* and is a bird of the forest. Those examined by Bates had only beetle and insect remains in the stomach.

A pair of Korean Ring-necked Pheasants (*Phasianus colchicus karpowii*), presented by the governmental authorities of Korea through the zoological gardens at Seoul, are of a race not previously in the collection. This race rather resembles the well-known Chinese Ring-necked Pheasant (*P. c. torquatus*).

Two young Green-billed Toucans have been purchased and a Bittern, found at Hayle in Cornwall during the very cold weather of early January, has been deposited.

Black-footed Penguins, Cereopsis Geese, Great and Abyssinian Eagle-Owls are nesting.

* * *

BRITISH AVICULTURISTS' CLUB

The seventy-sixth meeting of the Club was held at the Windsor Hotel, Lancaster Gate, London, W. 2, on Monday, 5th February, 1962, following a dinner at 7 p.m.

Chairman : Mr. K. A. Norris.

Members of the Club : Miss P. Barclay-Smith, A. W. Bolton, Miss K. Bonner, J. E. Collins, W. D. Cummings, J. O. D'eath, B. Dittrich, B. G. Gibbs, Mrs. R. Goodman, J. Hancock, H. J. Harman, Miss R. Hill, Dr. E. Hindle, Dr. J. R. Hodges, F. E. B. Johnson, F. T. Jones, Miss E. M. Knobel, R. F. Marshall, S. Murray, W. R. Partridge, A. A. Prestwich, B. E. Robinson, R. C. J. Sawyer, H. A. Snazle, E. O. Squire, A. J. Swain, Mrs. H. M. Vane, Mrs. G. Wheatley.

Members of the Club, twenty-nine ; guests, thirteen ; total, forty-two.

George S. Cansdale showed colour transparencies to illustrate " Birds unlimited or a visit to the Uganda National Parks ".

ARTHUR A. PRESTWICH,
Hon. Secretary.

NEWS AND VIEWS

La Société Nationale de Protection de la Nature et d'Acclimatation de France has awarded its highest distinction, the *Grande médaille Isidore Geoffroy Saint-Hilaire*, to Peter Scott.

* * *

Colonel Poul Calvert, Copenhagen, had a very good breeding season, 1961. The following parrakeets were successfully reared : Golden-mantled Rosella, seven ; Mealy Rosella, eleven ; Pennant's, eight ; Stanley, thirteen ; Princess of Wales's, seventeen ; Crimson-winged, three ; King, one ; Bourke, twenty-five ; Turquoise, eighteen ; and Splendid, fourteen.

* * *

K. Russell reports that last year John Scott successfully reared a fine young Black-capped Lory. Mrs. Dalton-Burgess bred this species in a large cage in 1921 : the young one was exhibited at Olympia in 1922. At the Chicago Zoological Park a pair of Swainson's Lorikeets successfully hatched and reared a young Black-capped in 1948. I know of no other successes.

* * *

Captain Arderne Clarence, at present in Honolulu, kindly sends the result of the annual bird trek made by the Hawaii Audubon Society, on 31st December, 1961. A total of 3,952 birds of thirty-nine species was counted. Seven unusual migrants were noted : Canada Goose, one ; Green-winged Teal, one ; Lesser Scaup, one ; Semi-palmated Plover, two ; Greater Yellow-legs, four ; Long-billed Dowitcher, one ; and Glaucous-winged Gull, two.

* * *

R. T. Kyme reports " a fairly good " breeding season last year : Golden-mantled Rosella, one pair reared three, and another pair four good young ; Mealy Rosella, the " pair " proved to be two hens, both laid and sat well ; Stanley, one pair reared six and another four ; Pennant's, deserted their two young at about three weeks ; Red-rumped, split-yellow cock and normal hen, had a nest of five young but deserted them ; Cockatiel, one pair reared ten and another pair four ; Rock Pebbler, made no attempt ; Green Conure, three eggs, broken.

* * *

Dr. R. E. B. Brown, Newcastle, N.S.W., writes : " I am very busy trying to save the first nest of Red Tanagers—of this season, as it is a terribly wet spring, severe floods. I have had luck with the Bleeding Heart Pigeons (*luzonica*). I started with three and now have over forty. Concerning inbreeding in birds—there are thousands of Aberdeen Finches in aviaries in Australia—they are all descended

from *one* cock and *three* hens. They don't show any sign of lack of vigour or fertility, in fact they breed like mice if given plenty of white ants (termites)."

* * *

Walther Langberg, Copenhagen, writes : " Last year I had luck with the Crimson-wings and bred eight young ones. Splendids and Turquoisines also reared young but not so many as in 1960. I had no suitable accommodation for the Grey Parrots, but I am at present building new aviaries and I hope to put up the old breeding pair and a pair of young from 1956. In indoor flights I was fortunate with Blue-faced and Peale's Parrot Finches, also with Painted and Cherry, etc. I have recently obtained some Violet-eared Waxbills, Verreaux's Twin-spots, and Pearl-necked Silverbills."

* * *

Curt af Enehjelm, Helsingfors, reports : " Copenhagen Zoo again reared young Snowy Owls, five I believe. The single Lapland Owl I gave them laid four (?) eggs. My own pair (?) also laid eggs and sat, but unfortunately the hen suddenly died, so I am now lending my single cock (?) to Copenhagen for the next season. All the Snowy Owls I got from Copenhagen turned out to be cocks and the only wild-caught one from Finland, an obvious hen, unfortunately died. Now I have got a new young bird from Copenhagen, a very large one, so I hope it really is a hen. I have not had any success with owls or birds of prey this year. The African Eagle-Owls had two young which died in the nest. A *Falco tinnunculus* laid eggs, but they were clear."

* * *

Charles Lucas, Ivanhoe, Victoria, writing mid-December, says : " Despite my preoccupation with my professional work I have kept my birds going and at the present time, towards the end of the current breeding season, I am simply crowded out and will have to do something about reducing the stock on hand before very long. I had six pairs of Princess up this year, four of which produced young, consisting of a one, a two, a three, and a four, making a total of ten and there is quite a possibility that one or more pairs will go down for a second time. These young are all on the wing and look to be in very nice condition. In addition I have got about fifteen Bourke's, about eighteen Turquoisines, ten Scarlet-chested, and five Elegants. For the first time I have bred two nests of two each of Spinifex Pigeons. I do not know whether you know these birds, but the young are the most delightful pinky, chocolate-coloured fluffy balls. They grow very rapidly and when they mature they are altogether delightful little fellows who run about the ground at a great rate, and with their dainty little crests are altogether lovely little birds. I have also for the first time bred a young Green-winged Pigeon which is very gratifying.

In addition I have got some finches of different kinds, particularly Cutthroats who have almost eaten me out of house and home. Seed is a terrific price here at the present time, due as we are told to drought conditions in Queensland, but the prices fluctuate so much and vary between different dealers that we feel that there is something of a racket on foot in the bird seeds."

* * *

That great dove and pigeon enthusiast Professor Carl Naether, of Encino, California, reports: "After corresponding with Indian exporters for a period of several years concerning Snow Pigeons, I was given a pair by a generous zoo director in Europe. Moreover, I finally obtained some Maiden Doves (*Calopelia puella*), which I have been wanting for a long time, and which, so I understand, have not as yet been bred in captivity. [This dove, also known as the Gold Coast Odu or Schlegel's Dove, was bred at the London Zoo in 1951 and 1953.] I believe that Jean Delacour also purchased some from the same importer. Since we had frosty nights at the time the doves came from the Quarantine Station in New York, and since, supposedly, they are very sensitive to cold temperatures, I kept them 'under the lamp' for some weeks. Now they are in an outdoor aviary, where I hope to breed them this spring, provided, of course, I have a true pair in my small lot. Approximately six months ago, I purchased a pair of Bartlett's Bleeding Heart Pigeons, a species which used to breed very successfully in my aviaries some years ago. Foolishly, I disposed of all the offspring, only to lose the old hen. Left with only a male, I finally obtained a mature pair, I believe the only one in California, if not in the country. The hen was in very poor feather at the time I purchased the pair. With generous feedings of diced Longhorn cheese, shelled sunflower seed, and a few mealworms daily, besides the usual seed mixture, she seemed to improve sufficiently to enable her to lay early this year; however, the egg was infertile. The second egg proved to be fertile, but did not hatch. Still she persisted in laying, and the third time, a youngster hatched, which is now ten days old, and which both parents brood persistently and very closely. So, I hope, once again, to raise these very handsome doves. I might add that a lovely pair of the Key West Quail Doves, now in perfect feather, show signs of wanting to nest."

A. A. P.

* * *

CORRESPONDENCE

A MEETING OF PARROTS

A letter from me seeking information in regard to a picture called "A Meeting of Parrots" was published in the AVICULTURAL MAGAZINE, Vol. LXI, page 44, and which brought in no result whatever.

By a strange coincidence I have now discovered the source of the reproduction.

It occurs in *The Nation's Pictures*, Vol. II, page 44, published by Cassell and Co., Ltd., in 1902, and is entitled "A Select Committee" from the picture by H. Stacy Marks, R.A., in the Walker Art Gallery, Liverpool. Size 46 × 35 inches. Bought in 1891.

The legend continues "This student of bird-life early showed his talent in this direction. His 'Princess and the Pelicans' was one of the best of this kind. He sought subjects of this particular character the more agreeably to present his carefully finished studies of birds. A frequent visitor to the Zoological Gardens, he there found all the varieties he desired of parrot life and those shown in the picture were doubtless all taken from the collection there, and probably are all portraits of particular birds."

Possibly a member resident in the Liverpool area may be able to ascertain whether the picture is still displayed there.

ALAN LONDON.

66 BROUGHAM PLACE,
NORTH ADELAIDE, SOUTH AUSTRALIA.

THE PURPLE GALLINULE IN GREAT BRITAIN

I am interested in the Purple Gallinule (*Porphyrio porphyrio*) which is not accepted as a British Bird. The *Handbook of British Birds* says that examples have been captured from time to time "but these had probably escaped from captivity or semi-captivity". Peterson, etc., in a *Field Guide to the Birds of Britain and Europe* say that it is a vagrant to Northern France, Norway, etc., which would seem to indicate that there is no reason why it should not occur wild in this country.

I know of three Dorset records. The first was killed "on the River Frome" sometime in 1908 and is in the Dorchester Museum. The second was discovered in a field of marigolds near Bridport in September, 1914. In an exhausted state, it was killed with a stick and is in the Bridport Museum. The third was seen on Portland on 2nd January this year (1962).

I should be very glad to know whether it is possible to find out to what extent this bird has been kept in captivity in this country during the present century, and also whether any have, in fact, escaped.

Perhaps I should add that, although 2nd January would seem to be an extraordinary date, there was a very large movement of Redwings, Fieldfares, and Skylarks at the time, many appearing to come in from the sea.

I shall be most grateful for any help the readers of the AVICULTURAL MAGAZINE can give me or suggestions they may be able to make.

E. H. LOUSLEY.

BLACKSAND,
15 BELLE VUE ROAD, WEYMOUTH.

CAPTIVE ANTARCTIC SKUA SWALLOWING A PINK WOOLLEN GLOVE

While visiting the Regent's Park Zoo, London, in November, 1959, I was attracted by loud calling and squabbling in one of the large aviaries where a number of Antarctic Skuas (*Catharacta skua antarctica*) were housed. At first they appeared to be fighting for possession of a piece of raw meat, but on closer investigation I was surprised to discover that the cause of the disturbance was a pink woollen glove. In fact a number of the birds were tugging on individual fingers of the glove and an "all in tug of war" continued for about three minutes. Eventually one of the Skuas broke away and although closely pursued managed, with some difficulty, to swallow the undamaged glove.

I later corresponded with Mr. H. N. Southern, Bureau of Animal Population, Oxford, in reference to the above episode, and his comments were "It is most interesting and raises lots of possibilities for experiment".

BERNARD KING.

MAYFIELD,
UPLANDS ROAD,
SALTFOED, BRISTOL.

The Editor does not accept responsibility for opinions expressed in articles, notes, or correspondences.

THE AVICULTURAL SOCIETY RECEIPTS AND PAYMENTS ACCOUNT

Year ended 31st December, 1961

RECEIPTS			PAYMENTS		
	£	s. d.		£	s. d.
To Balance at Bank, 1st January, 1961		254 10 4	By Printing of Magazine		1,348 0 7
Subscriptions			" Coloured plates		420 0 10
Arrears		6 2 0	" Authors' separates		22 15 4
Current		1,140 9 2	" Sundry printing and stationery		124 1 8
In advance		208 7 9	" Printer's service charges		30 2 10
Life		60 0 0	" Honorarium to Editor		100 0 0
			" Translations and services		4 0 0
Donations		1,414 18 11	" Secretarial		52 0 0
" Sales of Magazines		92 0 4	" Preparation of Index		15 15 0
" Sales of <i>The Anatinae</i>		242 3 7	" Advertisements, leaflets, etc.		23 5 9
" Sales of <i>Grebes</i>		9 10 7	" Expenses at Council Meetings		6 0 3
" Sales of waterfowl rings		1 7 4	" Medals and engraving		18 3 0
" Sales of coloured plates		17 17 0	" Purchase of waterfowl rings		19 8 7
" Advertisements		31 5 2	" Postages		47 10 4
" Dividends		227 7 8	" Bank charges and cheque books		11 1 7
			" Miscellaneous expenditure		9 14 7
		1,414 18 11			
			" Balance at Bank, 31st December, 1961		2,252 0 4
					107 2 1
					£2,359 2 5

This Statement has been prepared from the books, records and vouchers of the Avicultural Society, and is in accordance therewith.

LONDON.

31st January, 1962.

J. WATKIN RICHARDS } *Hon. Auditor.*
Certified Accountant.

When Visiting the

COTSWOLDS

AVICULTURISTS ARE WELCOME

TO

“BIRDLAND”

*Set in the charm of an
old English Garden at
the lovely Village of*

BOURTON-ON-THE-WATER

BOOKS on BIRDS

*Catalogue
on
request*

WHELDON & WESLEY LTD.
LYTTON LODGE, CODICOTE,
NR. HITCHIN, HERTS.

Telephone : CODICOTE 370.



**For
TROUBLE-
FREE
Breeding !**

from your seed dealer

VIT-MIN Powder 1/4, 3/9, 12/- ; Liquid 3/6, 11/-
The supreme diet supplement, rich in all essential vitamins and minerals. Given in seed, soft food, or water, it ensures superb health & fertility, & BUILDS FINE STURDY BIRDS.

BIRD TONIC 1/2, 2/2, 3/9, 10/6

The finest tonic and pick-me-up. Purifies the blood and tones up the system. Ensures sparkling health and vitality for breeding and showing.

MOULTONE 1/7, 3/9, 10/6

A special tonic for birds in the moult. Quickly restores vitality, and aids feather growth.

A.B.C. MIXTURE 1/7, 3/9

For the relief of Asthma, Bronchitis, and Colds.

AVOL (Liquid) **AVEX** (Powder) 1/10, 3/3

Both for the prevention and treatment of Enteritis, Diarrhoea, Looseness, Sickness, Indigestion, Acidity, etc.

PEK-SPRAY 2/2, 5/3

Stops feather plucking in cage birds. Safe for chicks. Harmless to eyes. Ready-for-use in spray bottle.

ANTI-MITE (Aerosol) 2/7, 4/8, 9/9

Press-button insect spray for DIRECT use on birds and cages. Kills all mite and lice. Harmless to birds.

RID-MITE 1/1, 2/8

The safe and efficient insect powder. For dusting birds, cages and nest linings. Kills all mite and lice.

SCALY-CREAM Tubes 1/6, 2/6, Jars 2/6

The certain cure for scaly face and scaly leg. The modern remedy in hygienic applicator tube.

Johnson's Veterinary Products Ltd., Sutton Coldfield, Eng.

SPECIAL BIRD FOODS



FAMOUS
SINCE
1823

Universal (Pictorial Packet)	Fortifier	Perfort	Insectivorous (Red Packet)	Fort-Egg and Colorfort
$\frac{1}{2}$ lb. 1/10 $\frac{1}{2}$	3 oz. 10 $\frac{1}{2}$ d.	3 oz. 10 $\frac{1}{2}$ d.	$\frac{1}{2}$ lb. 3/-	$\frac{1}{2}$ lb. 2/3
1 lb. 3/6	$\frac{1}{2}$ lb. 2/-	1 lb. 4/-	1 lb. 6/-	1 lb. 4/6
3 $\frac{1}{2}$ lb. 11/9	3 $\frac{1}{2}$ lb. 13/6	3 $\frac{1}{2}$ lb. 13/6	3 $\frac{1}{2}$ lb. 21/-	3 $\frac{1}{2}$ lb. 15/-
7 lb. 22/9	7 lb. 26/6	7 lb. 26/6	7 lb. 38/8	7 lb. 29/9
28 lb. 85/-	28 lb. 98/-	28 lb. 98/-	28 lb. 154/-	28 lb. 112/-

HEALTH GRAINS

C.L.O. Rearing and Condition Food (Condition Seed)

$\frac{1}{2}$ lb. 1/-	14 lb. 20/-	3 oz. 1/-
1 lb. 2/-	28 lb. 38/6	1 lb. 4/6
3 $\frac{1}{2}$ lb. 5/6	56 lb. 75/-	3 $\frac{1}{2}$ lb. 15/6
7 lb. 10/6	1 cwt. 140/-	7 lb. 30/-

"GREENSTUFF"

A dehydrated form of green food consisting of lettuce, spinach, carrot, etc., readily taken by all birds.
Packets 1/- & 3/6, also sold in bulk.

When sending for above Birdfoods please add for part cost of postage :
 $\frac{1}{2}$ lb. pkts. 6d. 1 lb. pkts. 1/- 3 $\frac{1}{2}$ lb. and 7 lb. 2/- 28 lb. and over
 Carriage Paid.

MEALWORMS

"MARBA" DUTCH BRED (small type)

"SANTA GERMAN BRED" (large type)

Whether you prefer the small Dutch mealworm or the larger German type, we can give you the finest service obtainable, with shipments arriving twice weekly. Dispatch guaranteed same day as orders received.

1 oz. 2/9	2 oz. 4/6	4 oz. 7/6	8 oz. 12/6	1 lb. 22/6
Also in original Boxes as imported Nett weight guaranteed				
2 lb. 40/-	3 $\frac{1}{2}$ lb. 60/-	6 $\frac{1}{2}$ lb. £5 15s. 0d.	All Carriage Paid.	

MAGGOTS

We sell only the best liver-fed maggots, specially recleaned and ready for immediate use for bird feeding. Packed in bran. No mess or smell.

2 oz. 3/4	4 oz. 4/6	8 oz. 7/-	1 lb. 10/6
-----------	-----------	-----------	------------

FEEDING SUNDRIES

Dried Flies (Chinese)	$\frac{1}{2}$ lb. 5/-	1 lb. 9/6
Silkworm pupae (Whole)	3/9	6/6
" " (Ground)	4/-	6/9
Dried Mayfly larvae (Whole)	6/6	12/6
" " (Ground)	6/9	12/9
Dried Dragonfly larvae	6/6	12/6
Dried Shrimp (Fine, Medium, or Coarse)	2/3	3/6
Ant Eggs	13/6	25/-
Pure Dried Egg	6/6	12/6
Dried Rowan Berries (Whole)	2/9	4/6
" " (Crushed)	3/-	4/9
Pure Breadcrumbs (Fine, Medium, or Coarse), far superior to biscuit meal	2 lb. 3/- ; 4 lb. 5/6 ; 14 lb. 17/6 ; 28 lb. 28/-	
"Egg-crums," guaranteed to consist of 90 per cent breadcrumbs and 10 per cent pure egg	2 lb. 5/6 ; 4 lb. 10/6 ; 7 lb. 17/6	

ALL ABOVE PRICES ARE POST PAID

E. W. COOMBS, LTD.

255 Walderslade Road, Chatham, Kent

Phone : Chatham 61068

Grams : Avicult, Chatham, Kent

CANDIDATES FOR ELECTION

- Mrs. S. M. ANDERDON, Henlade House, Taunton, Somerset. Proposed by Miss P. Barclay-Smith.
- A. L. CRAWFORD, 5 Downer Street, Brayville, South Australia. Proposed by Miss K. Bonner.
- F. DOWNTON, 41 Howbank Road, Egremont, Cumberland. Proposed by G. J. Irving.
- ADOLPHUS FLOWERS, P.O. Box 147, Oakdale, L.I., New York, U.S.A. Proposed by Otis Wade.
- G. H. PETER FRANK, 2326 Dominguez Apt. D, Torrance, Calif., U.S.A. Proposed by Professor Carl Naether.
- Dr. GRACEY, Ph.D., B.Agr., M.R.C.V.S., D.V.S.M., Belfast Zoological Society, 3 Stewart Street, Belfast, N. Ireland. Proposed by Sir Crawford McCullagh, Bt.
- Mrs. JOE F. HALL, R.R.1, Grabill, Indiana, U.S.A. Proposed by Otis Wade.
- Mrs. E. E. HAYES, 309 Cason Street, Belmont, N.C., U.S.A. Proposed by A. A. Prestwich.
- C. D. JOLLY, 4 Strudwick Court, Binfield Road, Clapham, S.W.4. Proposed by Miss K. Bonner.
- J. T. KESSELL, 13 Hensingham Road, Whitehaven, Cumberland. Proposed by G. J. Irving.
- AAGE MADSEN, Skovbo, Viborg, Denmark. Proposed by Miss K. Bonner.
- JOHN J. MALLET, Jersey Zoo Park, Trinity, Jersey, Channel Islands. Proposed by Miss K. Bonner.
- PAOLO MANTEGAZZA, Via Sangallo 51, Milano, Italy. Proposed by A. A. Prestwich.
- JOHN MACNEIL, 3124 Veteron Avenue, West Los Angeles 34, Calif., U.S.A. Proposed by Miss K. Bonner.
- D. O'CONNELL, 9 Cumberland Road, Kensington, Johannesburg, Transvaal, South Africa. Proposed by A. A. Prestwich.
- J. A. PAGE, 12 Dartmouth Road, Olney, Bucks. Proposed by J. E. Collins.
- JON B. SIGURDSSON, Sigtun 37, Reykjavik, Iceland. Proposed by A. A. Prestwich.
- P. H. SMITH, Buurtweg 63a, Wassenaar, Holland. Proposed by A. C. Metz.
- ERIC VINCENT, Clarendon Street, Dromana, Victoria, Australia. Proposed by A. A. Prestwich.
- G. M. WANT, 26 Sandringham Road, Norwich, Norfolk. Proposed by G. Shearing.
- MARTIN W. WOODCOCK, 11 Eccleston Square, London, S.W.1. Proposed by A. A. Prestwich.
- GIUSEPPE ZAMPARO, via Palmanova 5, Udine, Italy. Proposed by Miss K. Bonner.
- JOHN R. ZEY, 2119 Hearst, Apt. 8, Berkeley 9, Calif., U.S.A. Proposed by Miss K. Bonner.

NEW MEMBERS

The thirty-one Candidates for Election in the January-February, 1962, number of the AVICULTURAL MAGAZINE were duly elected members of the Society.

CHANGES OF ADDRESS

- P. R. J. ABRAHAMS, to 31 Waldgrave Road, Upper Norwood, London, S.E.19.
- IVAN BAMPTON, to Box 202, Kisumu, Kenya.
- J. W. BONNY, to 43 North Park Drive, Blackpool, Lancs.
- Dr. HOWARD GUREVITZ, to 616-42nd Avenue, San Mateo, California, U.S.A.
- W. C. HALL, to Lancrigg, Grasmere, Westmorland.
- J. E. HARRIS, to Dimble Croft, Alton, Stoke-on-Trent.
- Mrs. K. E. HOLLAS, to Patterdown House, Chippenham, Wilts.
- A. JEWELL, to 107 Oxford Road, Burford, Oxfordshire.
- H. T. KING, to 16 Revesby Road, Woodthorpe, Nottingham.
- WERNER KLOVEKORN, to Gartenstr. 137, (22a) Goch-Rhld, West Germany.
- R. H. MATTIN, to 7836 E. Cypress Street, Scottsdale, Arizona, U.S.A.
- R. P. R. MCGLASHAN, to Rutherford, Gatehouse-of-Fleet, Galloway, Scotland.
- J. H. NOON, to 56 rue Marie Depage, Brussels 18, Belgium.
- W. C. O'CONNELL, to 105 Fayette Circle, Ft. Wright, Covington, Kentucky, U.S.A.
- W. F. PALSSON, to Halldorsstadir, Laxardal, S. Pingeyjarsyslu, Iceland.
- F. H. H. REITZ, to "The Patch Farm," Slimbridge, Glos.
- JONNY ROTERS, to Box 370, Massey, Ontario, Canada.
- W. M. SANDS, to "Ashmount," Londesborough, York.
- J. W. TAYLOR, JR., to 241-243 Arundel Street, Landport, Portsmouth, Hants.
- W. H. TIMMIS, to Taronga Zoological Park, Mosman, Sydney, N.S.W., Australia.
- F. J. WILTSHIRE, to 13 Winchelsea Avenue, Bexleyheath, Kent.

CORRECTED ADDRESS

Dr. LEWIS F. KIBLER, 1343 North Main Street, Jamestown, New York, U.S.A.

DONATIONS (Coloured Plate Fund)

	£	s.	d.		£	s.	d.
I. Bampton	1	0	0	D. R. Moore	10	0	
G. Banks	10	0		D. W. Muirhead	5	0	
Mrs. E. J. Birchall	1	0	0	S. Murray	2	0	0
A. Bosch	5	0		J. MacNeil	10	0	
Col. P. J. Calvert	5	0		A. J. O'Brien	4	0	0
J. E. Collins	10	0		Mrs. F. Poe	15	0	
Dr. C. F. Costa	5	0		Mrs. J. E. Robinson	15	0	
Mrs. L. Da Costa	5	0		R. R. Rymill	5	0	
D. R. Deacon	5	0		Mrs. H. L. Schumacher	15	6	
A. Dupont	5	0		J. Seago	10	0	
B. C. Eastick	5	0		W. G. Sharpe	10	0	
W. L. Eaves	1	2	0	Miss I. Stoney	2	3	0
J. Gillen	5	0		J. G. Suthard	1	2	0
L. Goldenberg	5	0		Franz Sziller	5	0	
R. H. Grantham	10	0		W. H. Timmis	5	0	
J. Leslie	5	0		Mrs. O. H. Wallin	15	0	
R. A. Lynex	2	0	0	J. J. Walsh	5	0	

MEMBERS' ADVERTISEMENTS

The charge for Members' advertisements is THREEPENCE PER WORD. Payment must accompany the advertisement, which must be sent on or before the 15th of the month to A. A. PRESTWICH, GALLEY'S WOOD, EDENBRIDGE, KENT. All members of the Society are entitled to use this column, but the Council reserves the right to refuse any advertisements they consider unsuitable.

For Indian Birds buy direct from Baidyanath Acooli, 8/5a Barrackpore Trunk Road, Calcutta 2, India.

For Sale. Magnificent true pair of Funereal Cockatoos, also pair of Lear's Macaws.—W. MALE, 16 High Street, Potters Bar, Middlesex. Telephone : P.B. 52301.

Wanted. *Aviculture*, Volumes II and III.—G. J. IRVING, 2 Grove Road, Egremont, Cumberland.

NOTICE

Whereas the Hon. Secretary's address is Galley's Wood, Limpsfield, Surrey, for postal purposes it is Galley's Wood, Edenbridge, Kent. Will Members kindly use the latter to expedite delivery of letters.

598.20542
A94
Birds

K-8

AVICULTURAL MAGAZINE



CONTENTS

	PAGE
The Ceylon Lorikeet (<i>Loriculus beryllinus</i> (Forster)), (with coloured plate), by G. M. HENRY	81
The Breeding of the Fairy Blue Wren (<i>Malurus cyaneus</i>), by C. EVERITT	84
The Breeding of Allen's Hummingbird (<i>Selaphorus alleni</i>), by A. H. ISENBERG	86
I Dwell in Marble Halls, by SIR GODFREY DAVIS	88
Hand-rearing and the Ability to Find Food, by C. J. O. HARRISON	90
Some Random Observations of the Behaviour of Wild Pigeons and Doves in Captivity, by Professor CARL NAETHER	93
The Paradise Rifle-Bird (with plates), by C. EVERITT	95
The Parrots of Australia, by J. M. FORSHAW	98
The Seasonal Development and Changes in Plumage of the Whydahs <i>Vidua</i> and the Weavers <i>Euplectes</i> , by I. WOODWARD	106
News from Chester Zoo, by A. W. E. FLETCHER	109
London Zoo Notes, by J. J. YEALLAND	111
Council Meeting	112
British Aviculturists' Club	112
News and Views	113
Reviews	115
The Annual Subscription.	116

THE AVICULTURAL SOCIETY

Founded 1894

President : D. Seth-Smith, Esq.

**Hon. Secretary and Treasurer : A. A. Prestwich, Galley's Wood,
Edenbridge, Kent.**

Assistant Secretary : Miss Kay Bonner.

Membership Subscription is £1 per annum, due on 1st January each year, and payable in advance. Life Membership £15. Subscriptions, Change of Address, Names of Candidates for Membership, etc., should be sent to the Hon. Secretary.

THE AVICULTURAL SOCIETY OF AMERICA

Hon. President : Mr. Jean Delacour.

President : Mr. Paul Schneider.

**Secretary : Mr. Otis Wade, 1806 Redesdale Avenue, Los Angeles 26, Calif.
U.S.A.**

The annual dues of the Society are \$2.50 per year, payable in advance. The Society year begins 1st January, but new members may be admitted at any time. Members receive a monthly bulletin. Correspondence regarding membership, etc., should be directed to the Secretary.

THE AVICULTURAL MAGAZINE

The Magazine is published bi-monthly, and sent free to all members of the Avicultural Society. Members joining at any time during the year are entitled to the back numbers for the current year on the payment of subscription. All matter for publication in the Magazine should be addressed to :—

**The Editor : Miss Phyllis Barclay-Smith, 51 Warwick Avenue, London,
W. 9. Telephone : Cunningham 3006.**

The price of the Magazine to non-members is 7s. 6d., post free, per copy, or £2 5s. for the year. Orders for the Magazine, extra copies and back numbers (from 1917) should be sent to the publishers, Stephen Austin & Sons, Ltd., Caxton Hill, Ware Road, Hertford, England. Telephone : Hertford 2352/3/4.



CEYLON HANGING LORIKEET

AVICULTURAL MAGAZINE

THE JOURNAL OF THE AVICULTURAL SOCIETY

Vol. 68.—No. 3.—All rights reserved.

MAY-JUNE, 1962

THE CEYLON LORIKEET

Loriculus beryllinus (Forster)

By G. M. HENRY (Constantine, Falmouth, Cornwall)

The genus *Loriculus* (*Coryllis* of some authors) comprises a number of species of short-tailed, sparrow-sized parrots which are distributed throughout the Indo-Malayan region. In spite of their appellation of "Lorikeet" they are members of the brush-tongued section of the Psittaci to which the true Lorikeets belong, and some ornithologists prefer to call them "Hanging Parrots" or "Bat Parrots" in reference to their habit of sleeping head downwards, suspended by the feet from small twigs; inasmuch, however, as other, unrelated types of parrot adopt the same sleeping attitude (Prestwich, *Avicult. Mag.* 1954, 2), these names do not seem very satisfactory and until a really distinctive name can be invented for them I prefer to continue calling them "Lorikeets".

The Ceylon Lorikeet is confined to the Island, but it is very closely related to the only Indian species of the genus, *L. vernalis*, from which it differs merely in having the crown vividly scarlet in the adult instead of green; young birds are probably indistinguishable, and the two species are best regarded as belonging to a single superspecies.

A very common bird in the Island, it enjoys a wide range, but is patchily distributed in the dry zone (north and east of the south-central mountains) and is quite absent from all areas of very low rainfall. Its main centre of population is the foot-hills up to about 3,000 feet, but it is not uncommon up to 4,000 feet, and in the north-east monsoon (cool season) it ascends much higher. It moves about the country a good deal and, though hardly gregarious, it is sociable with its own kind, associating loosely in numbers wherever a favoured food supply is abundant. Being strictly arboreal, it never voluntarily descends to the ground. The flight is swift but undulating, being performed by an alternation of rapid fluttering followed by a dip with nearly closed wings; during the fluttering, a shrill flight-tone is always uttered—*twitwitwit...twitwitwit*—which serves to keep its companions acquainted

SMITHSONIAN
INSTITUTION

JUN 15 1962

with its movements. Very active, its waking moments are spent either in clambering about its food tree, or in making long and often circuitous flights, usually singly. Besides the flight-note, it indulges freely in a little squeaky warble suggestive of twisting a wet cork in the neck of a vial ; this is often uttered from a bare twig at the top of a tree. The food of the Lorikeet consists of sweet and juicy fruits, wild or cultivated, and the nectar of certain flowering trees, among which those of Dadap (*Erythrina*) and Silk Cotton (*Bombax*) are specially favoured. In addition, it evidently eats certain seeds as I have watched it extracting those of *Casuarina* from the small cones of this tree. When toddy is being collected into pots fixed in the crowns of palms by toddy-drawers the Lorikeet is given to imbibing the intoxicating liquor so intemperately that it is easily caught ; numbers of poor little captives, rendered " tame " by having all their primaries pulled out by the roots, used to be hawked about Colombo on " passenger days " (when mail steamers called at the port) for selling to the gullible. Needless to say, few of them survived this vile treatment—not to mention the unsuitable diet provided, of boiled rice and sugar-cane—for more than a few weeks or months.

The breeding season may extend from January to August, but March to July are the principal months. In courtship, the male indulges in amusing attitudinising, puffing out his blue throat-patch and erecting his scarlet rump feathers, while he advances along a twig towards his lady with stilted little runs and hops, squeaking and *twit*-ing. For a nesting-site, the pair choose a deep, natural cavity in a tree-trunk or branch ; for preference, one with a narrow entrance at the top, vertical or nearly so in direction, and from 2 to 6 feet deep. Dead Areca palms, whose interior quickly rots away leaving a hollow cylinder 3 to 4 inches in diameter and open at the top, are much favoured. The question of site being settled, the female proceeds to build her nest, which consists of strips, 1 to 2 inches long and about a quarter inch wide, which she nibbles from the margins of green leaves. Having cut a strip, she raises her rump feathers and inserts one end at their base. In doing this, she uses considerable force, seeming almost to press the end into the skin, but in spite of this many of the strips fall out. The operation is repeated until a ball of strips is inserted under the rump feathers, whereupon she flies off to her nest and deposits them. When a large mass has thus been accumulated, two or three eggs are laid on the top.

Baby Lorikeets appear to require very damp and rheumatically conditions in their nursery, as I once took a fully fledged and healthy youngster out of a very wet and insanitary cavity in an Areca stump ; no doubt the mass of slowly decaying green leaves supplies this (from the human viewpoint, highly unhygienic) environment. *Chacun à son goût.*

The male, though he evinces great interest in all these labours, does not so far as my observation goes, take any active part beyond cheering his wife with warblings and *twits*. The female sits very close and, if disturbed, seeks to repel an invader by angry screeches ; one, whose nest I investigated, interspersed these with what my note describes as “ an extraordinary, heavy, thumping, hollow sound, as if the wood were being thumped with a hammer.” The method of producing this is a mystery, but it must have been made by the Lorikeet as it was in series with the screeches, and ceased when the bird at last departed.

The Lorikeet is easily tamed and does well in an aviary, but only one pair must be kept together or fighting will ensue. The food should be of a soft and moist nature but not glutinous like the boiled rice above-mentioned, as the birds soon soil themselves grievously with such. A variety of sweet and juicy fruits should be supplied, and diluted honey or liquid mixtures as recommended for humming-birds would probably suit them well. They also eat a proportion of small grains, such as canary seed or millet, but I would recommend caution in supplying such, as the bulk of their natural food is liquid or semi-liquid. If breeding is desired, a nest-box approximating in form to the natural type as indicated above would be most likely to succeed, and a fresh-cut branch of green leaves should be suspended in the aviary every few days, for the female to furnish her nest from. In Britain I would suggest leaves of the oak or elm type as probably being suitable, but experimentation would be advisable. Although, in Ceylon, birds under my care have carried out the breeding operations to the point of laying full clutches of eggs, some unlucky accident has always intervened to prevent full success in breeding this delightful little parrot.

THE BREEDING OF THE FAIRY BLUE WREN

Malurus cyaneus

By CHARLES EVERITT (Trenton, N.J., U.S.A.)

It had long been the ambition of Mr. Edward Marshall Boehm to breed the Fairy Blue Wren, but ill-luck seemed to dog all his efforts from 1959 until 1961. A native of South Eastern Australia and Tasmania, it is known by a variety of names ranging from Superb Blue Wren, Blue Bonnet, Mormon Wren, Cocktail, etc., but is more familiarly referred to as the Fairy Blue Wren—*Malurus cyaneus*.

Not one of the smallest Wrens, its 5 inches includes a tail of some 2 inches in length. It is sexable at an early age, the male possessing a dark blue tail and dark brown bill, the remainder of the plumage being similar to that of the adult female which is grey-brown with lighter underparts. The bill of the female is reddish-brown and the tail dark brown. In addition, the female has a reddish-brown V-shaped marking running from the back of the head to above and below each eye. During the breeding season the male acquires an enamel-blue crown, ear-coverts, and upper back. The throat, chest, nape of neck, and lower back are black and the tail and bill are as described above. The lower abdomen and under tail-coverts are whitish and the flight feathers are dark brown. For the first three or four moults the male loses this colouring and assumes the brown phase. From then on, however, the moult effects no change and he retains the blue throughout the year. They have a pretty, tremulous song which, though of a limited range of notes, is very musical as they repeat it over and over again and it is no wonder that they are sometimes incorrectly referred to as the Superb Warbler. The females also have a pleasing call, even more limited, and only appear to resort to it when trying to attract their mate's or youngsters' attention. The male, however, appears to sing just for the joy of being alive.

They are not particularly easy to keep in captivity owing to their main diet being insects, but Mr. Boehm managed to save three out of a consignment of six he received early in 1959. They consisted of two males and one female. Unfortunately, like many of the Wren species, they are territorially minded when it comes to the breeding season and one of the males eliminated the other. The pair then began nest-building in December. They were housed in an indoor, heated, and planted bird-room so this did not present any great problem. However, success was not to be as the female was killed when the door was blown open during a gale and, as it slammed shut, it caught her in the jamb.

It was not until July, 1961, that Mr. Boehm was able to obtain any replacements but at that time he managed to secure five more pairs.

One pair was placed in another indoor aviary ; one in an outdoor one, also heated ; one pair was retained in the cage-room, and the last pair was split, the female being placed with the original male and the male placed in the cage-room together with the other pair.

With such new arrivals it was expected that some time would be required for them to familiarize themselves with the feeding and to become acclimatized. However, although this certainly appears to apply to those in the indoor aviaries, no such thoughts were entertained by the pair given the freedom of the outdoor enclosure. They were actually placed in the aviary on 31st July and on 9th August the female was observed to be building a nest in a low shrub. This was destroyed two days later and restarted in another bush at about one foot above ground level. Again the site was not approved for, on the 13th, this was demolished and her attentions given to building yet a third nest in a different position, farther from the entrance door and about three feet up.

The completed nest was dome-shaped with the entrance hole near to the top but protected by a form of porch. It had been made of rootlets, fine grasses, and collie clippings, being lined with fine dog's hair and feather down. It was very deep, the female being completely concealed when she was sitting. The first egg was laid on 19th August, the final clutch of three being completed by the 21st. No attempt was made to measure the eggs but they are estimated to have been about 10 by 7 mm. They were a pinkish-white, lightly spotted with reddish-brown.

Over two weeks elapsed, the female sitting steadily but, finally, on 6th September, she left the nest unattended for a complete morning. Examination revealed that all the eggs had been damaged in some way but that they had been fertile. Another nest was made, in the same bush but of much better construction, and the first egg of this second round was laid on 14th September. Again there were three, incubation appearing to begin from the laying of the first, and once more the entire task of tending the eggs was undertaken by the female.

On 27th September the first chick hatched and, by the evening of the 28th, three little light pink gapes could be seen. Great care was taken not to go too near to the nest and observation of the nestlings was confined to a quick glance to see if there were still three little mouths ever ready for food. The rearing, which was shared, was effected entirely with live food and regular issues of small mealworms and gentles were made every hour throughout the day. In addition to this, insects were collected in nets from the surrounding grass and tree lands and each night a blue-light insect catcher was set in operation. This secured a wide variety of insects ranging from large moths down to small gnats and mosquitos. First thing each morning

some of these were released into their aviary and it was amazing the way even quite sizeable moths were taken and fed to the chicks. The female would take them to the entrance hole, remove the wings, and then cram the body into the nearest open mouth. The male confined his efforts to the smaller flies and insects where no preparatory pseudo-filleting was necessary.

On 8th October all three young left the nest and it was a picture to see the three little bodies perched in a row between their parents, the entire family of five not occupying more than about $2\frac{1}{2}$ inches on the branch. Needless to say, the supply of live food was stepped up, visits being made every half an hour or so and they all progressed well, finally attaining independence on the 23rd.

The colouring of the fledglings closely resembled that of the adult female but was of a little lighter shade and the V-shaped markings by the eyes was lacking. By the time they were three months old it could be seen that there was one male and two females. It is planned to pair them up with those at present in the cage-room but, owing to their diminutive size but aggressive nature, it is likely to present a small problem in the selection of aviaries since two pairs cannot be housed in the same enclosure.

Although this species was bred as long ago as 1902 by Mr. R. Phillipps, London, see *Avicult. Mag.* 1902, 246; 1903, 15; 1906, 228, no subsequent success is known to the writer and, so far as records show, it is a "first" in the United States.

* * *

THE BREEDING OF ALLEN'S HUMMINGBIRD

Selaphorus alleni

By A. H. ISENBURG (Portola Valley, California, U.S.A.)

In the summer of 1959 we were given two young Allen's Hummers which had fallen from a nest. They were quite easily reared on our two formulas and fruit flies. Both proved to be males. The following year, one killed the other after peaceful co-existence for all those months. The remaining one became very tame and is a good show for visitors as he will come right up to the feeding vial, even when held an inch from my face and while surrounded with visitors.

In the fall of 1960 I caught a female and, after several weeks in a holding cage in the same aviary, I released her to live with the male. The male had been displaying constantly but, of course, could not make any of those fantastic U-shaped high dives, as the aviary is only about 9 feet high, so he satisfied himself with repeated 8-foot U's.

In April, 1961, the female began building a nest. I had tied bunches of cotton string to the limbs of the trees in this aviary and this material

she took to at once. As many cobwebs as I could find were also placed among the branches and some logs covered with lichens were stood up. This nest was rather flimsy and needed support after the two tiny eggs were laid. The female sat faithfully for about a week when we had a nasty rainstorm with high winds, which tipped the nest so the eggs fell out.

Within four days the female started another nest which was very much stronger and, here again, two eggs were laid and this time both eggs hatched on 19th June, after incubation of more than twenty days. The two young, like two small snapping beetles, did very well for about ten days when one disappeared and, up to this time neither young seemed to grow much and were still quite naked. After the tenth day, the remaining young grew quickly and on 15th July was seen sitting on the edge of the nest.

The female, during incubation, left the nest each time anyone entered the aviary. The male did not assist in any way and had to be moved to an adjoining aviary, as the female drove him off repeatedly and might have killed him. On 17th July, the young one took its first flight (which reminded me of a sick bee in flight) but quickly grew stronger.

The female fed the young for nearly two weeks with our formulas and small flies which she pumped into the young. Very interesting to me was that she would very often feed the young in the same way hummers hover over flowers, i.e. without sitting on the perch.

Soon after the young was feeding itself the female began to chase it and keep it from feeding, so that the young was caged and is doing very well.

I believe, given enough room and proper environment, hummers are not difficult to raise. I have reported, some years ago, the nesting of my Garnet-throated Hummers with two eggs, but the female was injured before incubation term was up.

Allen's Hummer is the most common one here with us and also a very pretty one, with the male's brilliant throat feathers.

In this aviary I have my breeding pair of Mexican Clarines, a pair of Pygmy Nuthatches, and a Japanese White-eye. The aviary is 40 feet by 8 feet, and 9 feet high.

Finally a word about our formulas for hummers, sunbirds, etc., may be of interest. The morning formula consists of one part honey to eight to ten parts water (we make about two quarts of this each a.m.). To this we add a generous, overflowing teaspoonful of Thompson's Multi-Vitamin Syrup and then we add four heaping teaspoons of Soyagen Milk Powder (which is a milk substitute) and blend for not more than 30 seconds in an electric blender. At 3 p.m. all feeders are washed and filled with one part honey to eight to ten parts water, plus twelve to fourteen drops of ABDEC vitamins for

two quarts. We use a little hot water with the honey at the start. *Never* use beef extract, white sugar, or synthetic vitamins.

For our Fiji Lories, Paradise Birds, Chloropsis, etc., we add to one quart of the Soyagen Formula, one raw egg and generous amounts of Pabulum and Toasted Wheat Germ and blend with the electric blender for about 30 seconds. If left in running blender too long the mixture tends to separate. Even our Egyptian Plover drink this formula and *all* our other birds love it, except the sunbirds, which prefer the mix without the egg.

* * *

I DWELL IN MARBLE HALLS

By SIR GODFREY DAVIS (Maidstone, Kent, England)

I dwell at present three storeys up in the mansion of dear Indian friends. The large garden is full of trees and I look from my verandah into their leafy shade. The floor of the great verandah in which I write is of marble, grey and white, patterned with coloured squares and circles of chrome and black. The extension to this verandah is open to the sky and the floor is tessellated with gaily coloured stones in intricate design. This is where the birds first came to meet me. The verandah's low and enclosing panelled walls are fashioned from a lovely red sandstone, quarried in Rajasthan. The panels are pierced and fretted with designs of the greatest delicacy, chiselled, as I have seen, from the solid stone. The finials of the uprights between the panels are finished as unopened lotus buds, most delicately wrought. It is on the top rails of these exquisitely panelled walls and on these unopened lotus buds that the birds most love to perch. The birds which first came to greet me were the Grey Babblers or "Sat Bhai" or Seven Brothers, as they are called, and they do, indeed, go about in family parties of this number.

Last year only one family came to see me but the good news must have spread abroad that here was a life of ease and plenty compared with the life of scarcity and toil which is their usual lot. When I was awakened in the silence and half light of the early dawn by the loud harsh calls, now softly muted, I found perched on the verandah rails and lotus buds no less than one and twenty of these birds, garbed so modestly in quaker grey. Three family parties had come to meet me. Little did I know at the time that these humble scavengers among the leaves would take complete possession of my abode, that this would become their hunting ground, and that I would become their slave.

The "Sat Bhai" or Grey Babblers were common birds in the spacious garden compounds which surrounded and secured the privacy of the large, old-fashioned rambling bungalows. As you moved quietly

along the overgrown paths, you would hear movement and a rustling among leaves and you would see a little company of grey birds looking worried, fretful, and overworked, with harsh complaining voices and untidy plumage, moving ever close to the earth, probing and searching the dead leaves for the insects on which they live.

A little less in size than the English Song Thrush, they are of slimmer build, with crouching stance. The plumage is a soft quaker grey, prettily striated on back and breast, when seen closely, as I so often do. The wings and tail are tinted with darker grey, the eyes are small with pupil of deepest black and iris of palest yellow. The sharp bill and feet are horn coloured, the toil worn feet are often earth stained, though now less frequently, as their feeding ground is become a marble floor. Their flight is weak, which often makes them a prey of hawks ; yet as events proved, this weak flight is admirably adapted for moving from chair to chair or from chair to table. They have no melody in their voices ; their calls are harsh squawks and squeaks, like the creaking of many ungreased wheels on wooden carts, but rising, when they get together with quivering wings, with tails outspread, with breast feathers all fluffed out, to fall on an intruder, into a loud harsh clamour. At other times when contented, their calls are muted and softened—sometimes with a questing, sometimes with an impatient note—but all are variations of the same harsh sound. They seem among the meek that have not inherited the earth, which all goes to show how on a superficial acquaintance you can be mistaken. For now they have established their tyranny over me, they seem to have changed entirely in temperament, in carriage and in disposition. No longer are they meek but proud ; no longer are they self-effacing but demanding and assertive. Their stance is bold and upright and their plumage trim and taut. They will perch on the table and look me steadily in the eye ; they will perch on the arm of my chair and watch me most intently ; they will almost interrupt a conversation with a friend. Two on one chair, three on another chair, four on a table, the room seems full of birds. They will crowd about my feet so that I must move with care. The verandah no longer provides sufficient scope for their activities. They rout me out in my very bedroom. The poles of the mosquito net are now their favourite perch.

The routine of their tyranny is now well established. I must get up at half light of dawn, in obedience to their soft and muted calls. Chapattis, the unleavened bread—the staple diet in India of so many—have not yet arrived and so upon their clamorous insistence I break up some of the precious biscuits brought for friends, now shortage of foreign exchange makes these little delicacies so hard to get ; so firmly is their tyranny established. And in the half light of dawn one and twenty shadowy forms descend upon the tessellated pavement and have the first meal of the day. At nine o'clock come chapattis and my little

tyrants know it. Broken up into small pieces they are an eagerly accepted food and any bit too big, will be held by a bird parrotlike, in its claws, and broken up. At one o'clock it is more chapattis and at five o'clock it is more biscuits. Now there is no escape. Should I at five o'clock or thereabouts be on a lower verandah, talking to my friend, there will be an ominous squawk and first one little grey head with little beady eyes and then another and yet another, will appear through the interstices of the panelled walls. My summons has come and I must go : and as I go from one staircase to another I can see the clan gathering from all corners of the garden. All are present to meet me when I arrive. But now I have got cunning. I have trained a servant to take my place. My little tyrants are fed and I am relatively free but they have their tender moments. One morning when it was very cold and I was late, I looked out of my mosquito net to see a little flock of birds all huddled together against the cold, forming a dark pattern on the rug beside my bed. They had let me sleep on ; they had not awakened me.

My friends' servants do not think my conduct at all strange. They are Hindus and deep in Hindu tradition is a reverence for all life. It is a pious act to feed the mendicant and indeed all living things. My mendicants are merely feathered. They say, with the phantasy of the East, I can speak the language of the birds and can call them from the tops of trees. This is only partly true.

* * *

HAND-REARING AND THE ABILITY TO FIND FOOD

By C. J. O. HARRISON (Tooting, London, England)

I have set down these notes on what would appear to be a straightforward and self-evident subject because I feel that at least one aspect of the hand-rearing of birds that will subsequently be released has been often overlooked, and that it is a vitally important one.

My own experience of hand-rearing fledglings was confined to a single summer, when I was teaching, and had brought to me a Mistle-Thrush, two Blackbirds, and a House-Martin, as well as a number of Starlings and House-Sparrows too far gone to react to human aid. Since I was teaching Biology I incorporated the fledglings in the curriculum, which justified their daily presence in the laboratory. The most important of them with regard to the present topic was the Mistle-Thrush.

This was the first bird brought to me and it was reared in isolation from other birds. It took food from my hand and was tame enough to be allowed its freedom in the laboratory. I was able to observe its development towards independence. At one stage it began to take an

interest in the objects around it, and would examine them and test them with its bill. It would pull at a red thread in a duster, and seize a cloth and drag it round the room. It showed enormous curiosity and investigated everything. I suspected that it might be testing their edibility, but it found nothing edible apart from what it received from me. At this stage in its existence it began to peck at, and eat, food that was placed in front of it, instead of waiting for it to be put in its mouth. Finally, when it was at a stage where it could be left in a garden aviary during the day, I gave it to a friend who hoped to study it before releasing it. When he had to go away for a short while he arranged for a regular supply of food for it, but it finally died of malnutrition in the midst of plenty.

The only obvious solution was to suppose that it could only recognise food when it was associated with the presence of a human being, although it did not necessarily take the food from the person himself who merely represented "the place where food was to be found". I was fortunate enough to hear Maxwell Knight discussing the topic of hand-rearing birds and some of the instances which he quoted appeared to bear this out. Subsequently I gave the matter some thought and the following hypothesis occurred to me.

It seems possible that there may be a *definite and limited period* during a young bird's life when it learns to recognize the appearance and location of the food which is to be its staple diet. If at this time it does not find anything edible except from the hands of a human being, then it will be unable to recognize and find its natural food if suddenly released. It is obvious that some learning of new foods occurs in the adult stage in birds, but it is possible that this is a slow process and that if food-finding has not been learned at the proper period then this later process will not be rapid enough to permit the bird to survive in a wild state.

It seems possible that the food-finding period in the fledglings development might be comparable to the stage we find in most animals, including ourselves, where the sounds necessary for communication are suddenly learned with incredible ease. This period seems to occur in small children somewhere about the age of four, and the ease with which a child so young can effortlessly acquire the language spoken by the adults around it, and equally effortlessly forget the language it may have known a week or so previously, is quite fantastic. Later in life new languages are only acquired by a slow and painful learning process. It seems possible that birds may have a similar period in the development of the young during which they very rapidly learn to recognize and find their natural food, and that they subsequently rely on this knowledge in order to survive.

I have discussed this idea with friends who have hand-reared young birds and there appears to be further evidence to back it up. Food is not lacking, but the human being, with whom the idea of food has

become associated, is absent, and so the bird starves. I have not been able to conduct a proper search through scientific literature to look for support for this hypothesis. There may well be additional data for or against it, and it is even possible that the idea has already been put forward, but, if so, it appears to have been overlooked and I think it is worth repeating.

This suggestion would not necessarily be true for all species. It will obviously differ between birds which are fed by their parents and those, such as game-birds, which feed themselves from the start. The problem may never arise with the latter. The learning of food-finding will differ according to the manner in which food is obtained. It is only recently, after a long tale of mortality, that it has been pointed out that young owls are dependent on their parents for food for a long period, far longer than anyone familiar only with passerines would expect. Tinbergen describes how young Hobbies are partially dependent on their parents for food right up to the time when they migrate. Any person who proposes to rear and release such birds must be prepared to allow the young bird months of practice in food-finding before leaving it to find its own food.

The natural setting may be as important as the food itself. The inability to recognize where to look for food probably brings about the death of many foreign birds which escape in this country. I have had a dead Shama brought to me which appeared to have died of hunger in an area which supported a number of Blackbirds and Thrushes which did not attack it, and where, had it been accustomed to searching for food as did these species, it should have had at least as good a chance of survival.

To sum up—if a bird is reared by hand and then released it is necessary to ensure that, during the period when the young bird is exploring its environment, it is able to *discover for itself its natural food in a natural setting*, and if this is not done then there is every reason to suppose that the bird is merely being released to die of hunger elsewhere.

People may protest that this is not possible in every case, to which I would reply that in such cases the bird should never be released. I am aware that most people obtain a deep emotional satisfaction when releasing a bird from captive conditions, but I feel that they should realize that this act of self-gratification does not necessarily do any good to the bird. To begin with one has, for a time, removed the bird from the natural population. The ecological balance of nature does not normally permit the leaving of a space to be filled at a later date. The natural increase of a species each year will tend to fill all the available spaces and the surplus will die in order to assist the survival of other predatory species. We now have on our hands a bird which is surplus to the natural requirement and which will either die or oust another individual to die instead, and the odds are on the former occurrence.

If we hand-rear a fledgling we do so for the sake of what we can learn from it, or for emotional gratification, or because we believe that it is incumbent upon us to save a life where we can rather than to kill or allow to die. These are all good and satisfactory reasons, but we must remember that our efforts have no bearing whatever on the survival of the species. To this depressing fact I would now add the possibility that by hand-rearing a bird we have deprived it of the means of acquiring the necessary ability to find food in order to survive.

In the light of the above I consider that the present legal situation, whereby it is necessary to release hand-reared birds when they become adult, is indefensible. The Nature Conservancy, in issuing permits for the hand-rearing of fledglings for scientific study, also stipulates that such birds must be released. I would suggest that in both cases the birds are probably being released to die out of sight, as a sop to public sentiment. (I would define sentiment as an emotional attitude which is not accompanied by either knowledge or intelligent reasoning. Logical readers may suggest that, by concerning myself with the well-being of a minute portion of the total bird population, I am displaying sentiment myself, to which I can only reply that we are all, to some extent, tarred with the same brush, but are not all conscious of our emotional attitudes.)

If we cannot be sure that a bird has been reared in such a way that it can not only recognize its food, but also the type of place in which that food may be found, and that it is also able to find for itself a typical roost site and such necessities as water, then, if we cannot keep it, it is as kind to end its life as to release it.

* * *

SOME RANDOM OBSERVATIONS OF THE BEHAVIOUR OF WILD PIGEONS AND DOVES IN CAPTIVITY

By Professor CARL NAETHER (Encino, California)

I used to think that wild pigeons and doves, never before kept in confinement, and wholly accustomed to feeding on natural, "native" seeds, would be quite slow in adapting their tastes to so-called artificial foods given them in captivity. Such, however, has not been my experience, which now extends over twenty-odd years. Thus, some Green-spotted Wood Doves, which came to me direct from Ghana, where they had but recently been caught in the jungle, took readily to diced Longhorn cheese and also to hard-boiled egg-yolk, as well as to shelled sunflower seeds. And while it may be true that in the wild state these doves had perhaps opportunity to taste egg-yolk,

though it seems unlikely, they most assuredly could not obtain there either cheese or shelled sunflower seed. And they fed on these to them new items, not because they were especially hungry, for they had a mixture of other seeds available, but presumably because they *preferred* them to the usual seeds. When it comes to egg-yolk, I am almost tempted to say that all doves, softbills, and finches which I have kept seem "instinctively" to relish it: they feed on it even though they may never before have been given hard-boiled egg-yolk. Certainly, the promptitude with which my wild doves and pigeons "take to" egg-yolk, cheese, and other foods they have not had before, suggests ready adaptation of the sense of taste to such to them new items. Which is quite interesting, particularly when one keeps in mind that members of the pigeon and dove family are not, according to reliable authority, blessed with so-called intelligence to any marked degree. But apparently they have a well-developed sense of taste and capacity to adapt it to new situations, both of which may in times of stress be instrumental in saving the species from starvation, if not extinction.

Another, and perhaps even more intriguing, observation concerns the *polygamous tendencies*, not necessarily established habits, in some species of wild doves and pigeons which I have been so fortunate as to keep for some time. These tendencies appeared plainly in the case of Pheasant-tailed Cuckoo Doves and, more recently, in the case of the Splendid Pigeons, both species of fairly recent importation; hence *suggesting* that such tendencies prevail also in the wild state. One male and two females of each species kept in a separate pen would readily mate and, using the *same* nest, would lay their eggs in it—some fertile and others infertile—but with only one bird brooding at any one time. Always only two squabs hatched, which then were reared to maturity without difficulty, but whether by all three birds, or only by two, I am unable to say. And while among domesticated pigeons, this polygamous state of affairs would have induced vicious fighting among the hens, in the above-mentioned instances all was peace and quiet! And again, while among domestic pigeons, youngsters, once they have reached maturity and self-dependence, are not tolerated in or near the old nest, the territory being steadfastly guarded especially by the old male, among certain species of wild doves and pigeons, the parent birds show no animosity towards their offspring, even when the latter are full-grown, though not as yet exhibiting signs of sexual tendencies. Only when actually beginning to coo and to display are the young being aggressively treated by their parents. If the young of Pheasant-tailed Cuckoo Doves and of Splendid Pigeons are accorded similar protective treatment by their parents in the wild state, it would seem that such rather long association of young with old would be of definite aid to the former in better "learning" and imitating the habits of their elders, habits tending to self-protection and survival.

A third observation concerns the distance in the aviary at which my wild doves and pigeons, as well as my other birds, tolerate my presence without taking the least offence, that is, without becoming at all frightened. This distance is the same in the ten pens in which I keep my birds. It simply extends to the feeding and watering dishes in the immediate front of each pen, and not a step beyond. In fact, the moment I step beyond this quite definite "line" the birds take alarm, especially when I approach the more distant nesting locations in the interior of each pen. So, of course, I respect my birds' rights, and refrain, as much as possible, from disturbing them, having learned years ago that the more they are left to their own devices, and to their own *territory*, the more at ease and at peace they will be.

If I enter my 'doves' abode, not wearing the customary old grey sweater, they take alarm immediately, sounding their short, penetrating notes of warning, which occupants in adjoining pens understand readily. Moreover, they assume at once flight postures, readying themselves for immediate escape from danger. And those doves which happen to be incubating or brooding, duck their heads deep into the nests as if to hide from the "enemy". I doubt that wild doves are conscious of the exact colour of their keeper's clothing, but they do notice any colour *different* from that which he usually wears when entering their aviaries. They take notice of anything new or strange in their immediate surroundings, but they are very slow and reluctant to examine such differences in their environment, and to that extent they certainly lack the sense of curiosity, which some of my other birds, softbills, exhibit in large measure.

* * *

THE PARADISE RIFLE-BIRD

By CHARLES EVERITT (Trenton, N.J., U.S.A.)

Rifle-birds, of which there are seven main species, are classified in the sub-family Parotiinae of the Paradisidae—Birds of Paradise group. There are some seventy different species in the main family which all originate from Australasia but only four of these have their habitat on the Australian mainland itself, the remainder being spread through the islands to the north, principally New Guinea. Of the four to be found in Australia, three are known as Rifle-birds, the fourth being the Manucode, also called the Australian Bird of Paradise or the Trumpeter, this species being in the sub-family Manucodiinae. There seems to be some doubt as to how the name Rifle-bird was originally arrived at and the most favoured theory appears to be the similarity between the colouring of the adult males to that of the

uniforms of the old English Rifle Regiments. One thing is certain and that is that it was not from any aboriginal word as so often occurs with the Australian fauna.

The species being dealt with here is the Paradise Rifle-bird—*Ptiloris paradiseus*—of which there are three specimens in the collection at the Edward Marshall Boehm Aviaries. These were originally received by myself in England, direct from Australia, in September, 1959. There were two pairs sent but, unfortunately, one female was dead on arrival. Due to their being in immature plumage, sexing them was a matter of conjecture and was based on the behaviour of each individual bird together with the fact that the base of the bill of one of them was paler than that of the other two survivors. The three birds were transferred out to here just prior to my wife's and my departure for the States.

It has been stated in authoritative writings that the males do not assume their full adult plumage under four years of age. Not knowing exactly how old they were when received, this statement is accepted and I can add that, after having had two complete moults, there is still no difference in their colouring from their original receipt. Not having had the privilege of seeing an adult male in full attire, to describe this bird I can only precis from descriptive literature I have read. The main colouration is a velvety black, with a slight brown tinge except for the back of the head and the wing feathers which have a purplish tinge. The crown, throat, and central pair of tail feathers are a metallic blue-green as are the feathers which extend from the lower abdomen which give almost a trouser-like effect when the bird is in repose. The eye is dark brown and the bill and legs are black, the latter being very powerful, reminiscent of the Jay family. At the base of the upper mandible there is a tuft of black feathers, entirely lacking in the immature bird, which tends to make the bill seem shorter than that of the female. They are about $11\frac{1}{2}$ inches in total length, the bill being nearly 2 inches long and the tail some 4 inches. The general body build is cobby, thrush-like, which makes the overall bird appear to be larger than it actually is. The female I am able to describe from the one we have here is slightly smaller, the difference being hardly noticeable but no doubt this will be more obvious once the males are in colour. The bill is blackish-brown and, as stated earlier, is paler at the base of the upper portion. The general colour is made up of various shades of brown which may be divided up in the following manner. The crown and cheeks are dark brown with whitish fleckings and there is a pale fawn stripe running from the base of the bill, over the eye, to the back of the head. The mantle is a lighter brown with a greyish tinge but the white fleckings cease at the base of the neck. The upper tail-coverts also are brown with the main tail feathers being a reddish brown, similar to the flight

DISPLAY OF PARADISE RIFLE-BIRD



No. 1.



No. 2.

Copyright]

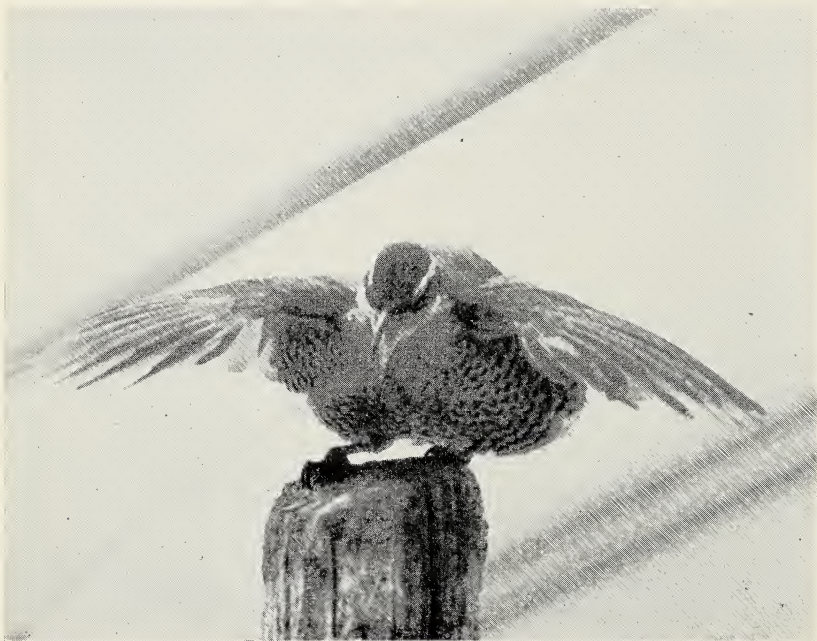
[J. Hoops Studios

To face p. 96

DISPLAY OF PARADISE RIFLE-BIRD



No. 3.



Copyright]

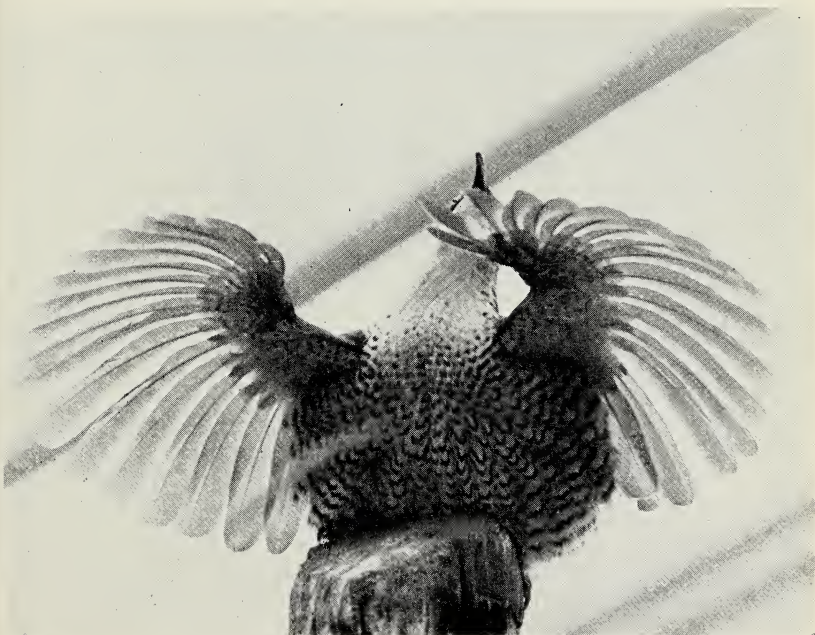
No. 4.

[J. Hoops Studios

DISPLAY OF PARADISE RIFLE-BIRD

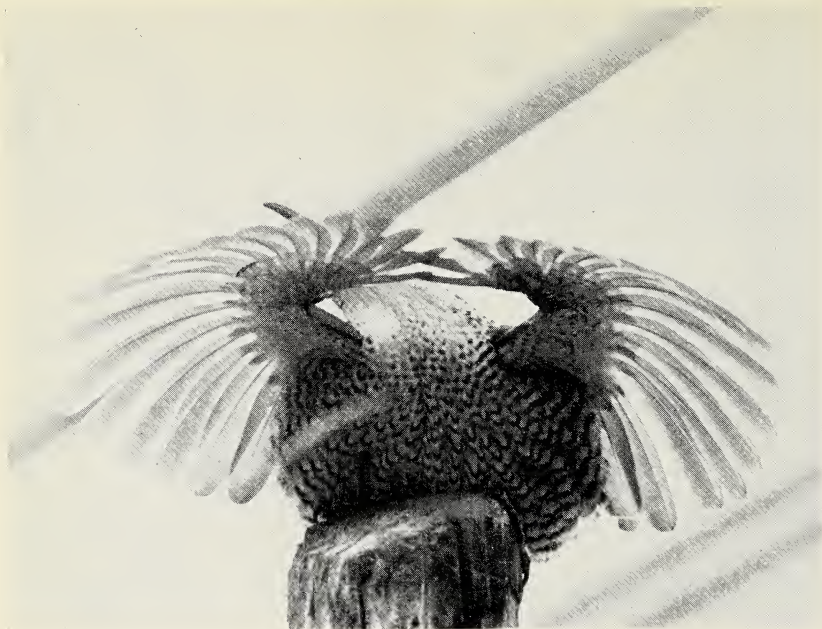


No. 5.

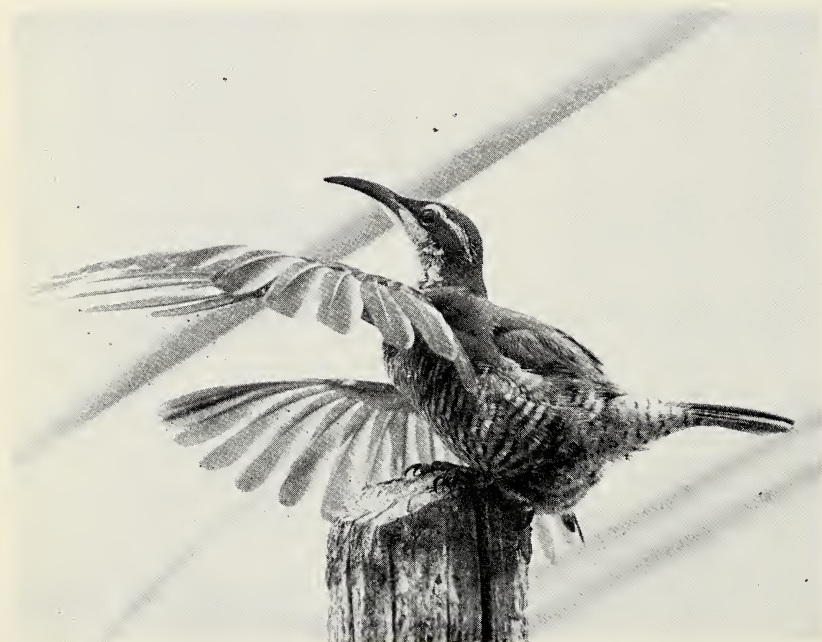


No. 6.

DISPLAY OF PARADISE RIFLE-BIRD



No. 7.

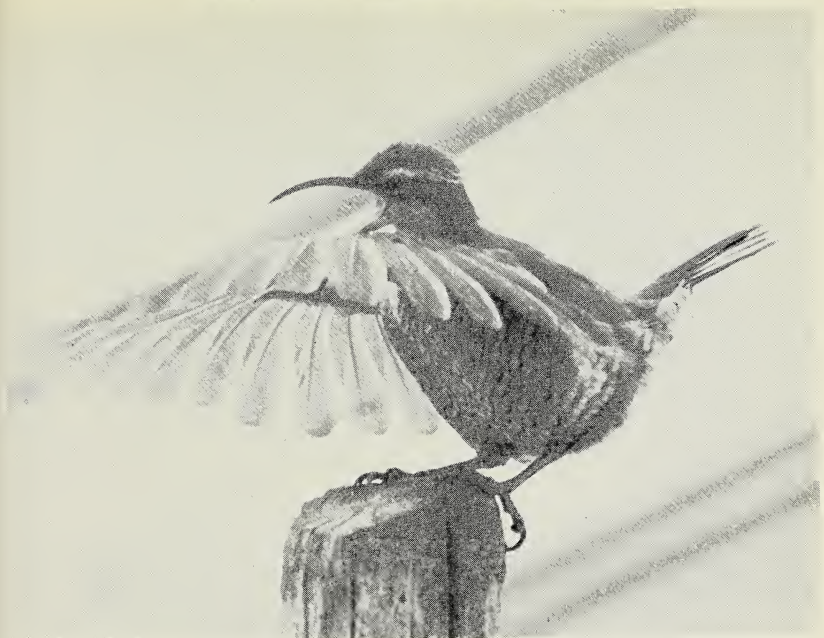


Copyright]

No. 8.

[J. Hoops Studios

DISPLAY OF PARADISE RIFLE-BIRD



No. 9.



Copyright]

No. 10.

[J. Hoops Studios

DISPLAY OF PARADISE RIFLE-BIRD



NO. 11.



Copyright]

NO. 12.

[J. Hoops Studios

To face p. 97

feathers. The chin is a pale fawn which colour extends through the entire underparts except that, from the upper chest downwards, it is lined with V-shaped brown markings, light and small at first and gradually darkening and thickening as they spread down the body. The under wing and tail-coverts are a reddish brown, the legs and eyes being the same as with the male. In the immature birds the V-shaped markings on the underparts appear to be more clearly defined on the female bird and the fawn background is paler and the flight feathers a little shorter than that of the immature male.

As previously mentioned, the three birds here are in their young plumage but the original sexing seems to have been borne out by the fact that two of the birds had a phase of persistent displaying. This was always done when they were standing on the very top of a post or tree stump and varied in duration from a few minutes at a time to periods up to as long as 30 minutes. It is a most fantastic sight and, since mere words could not do it justice, a series of photographs was made and I have attempted to place twelve of these in the usual sequence of movement. Starting from the introductory bow as in Plate 1, they work up to a strident call of "Ya-a-as, ya-a-as" which is emitted in the manner shown in Plates 9 and 10. All the gyrations are distinct, jerky movements, yet in their completion have a rhythmic tone. After the call, which may be repeated eight or nine times, there comes the final deferential bow to the female as she approaches and is embraced within the outstretched wings as illustrated in Plate 12.

At the present time all three birds are housed in one enclosure but, since in the wild the males are normally to be found each in its own territory, careful watch is being maintained so as to divide them up at the first signs of belligerence. Although their normal breeding time is from October to January, the birds here ceased displaying early in August and it is hoped that this is an indication that they are becoming fully acclimatized and that a breeding may be accomplished sometime in the future. Time alone will show whether they go to nest whilst still in immature plumage or wait until in full colour. If the latter is the case it may be a further two seasons before any steps are taken in, from our point of view, the right direction.

They are very insectivorous and, in addition to a liberal supply of mealworms, their diet consists of minced beef heart, egg-mix, blueberries, and small grapes which they supplement with the numerous grubs and insects they probe out from every nook and cranny in the framework of their aviary and the trees and shrubs that are in there. They do not confine their attentions to creeping insects for they are equally adept at catching flies in mid-air and short shift is accorded to any flying creature that ventures to transverse the interior of their enclosure.

THE PARROTS OF AUSTRALIA

By JOSEPH M. FORSHAW (Canberra, Australia)

The flashing brilliance of a flock of small Red-browed Lorilets (*Opopsitta leadbeateri*) as they wing their way through the jungle of Northern Queensland, or the magnificent lordly colours of the giant Red-tailed Black Cockatoos (*Calyptorhynchus banksii*) as they perch on a dead gum tree on the bank of a dry creek in the arid desert-lands of Central Australia, are just a couple of the rewarding sights that greet a bird lover as he sets out to view the Australian members of the order Psittacidae. Of all the wonderful bird-life of "Down Under Land" the parrots are the most interesting, the most fascinating, and the most colourful. Many of them are well known to people in England through the highly successful efforts of the aviculturists in that country. As I am not familiar with the situation in other countries, I would be most happy to hear from people in other parts of the world who are keeping Australian parrots.

When you observe an Eastern Rosella (*Platycercus eximius*) in your aviary or in a neighbour's birdroom does it ever pass through your mind; "I wonder what a flock of these birds would look like in their natural wild state"? On the other hand do you ever think what those parrots such as the Ground Parrot (*Pezoporus wallicus*) or the Palm Cockatoo (*Probosciger aterrimus*) that may be little more than names to you really look like in their natural homes? In a humble way, and with many shortcomings I admit, I hope to give you an answer to these and other questions about the Australian parrots in their natural habitats.

In past years aviculturists and field ornithologists have not always been on the best of friendly terms. The ornithologists have been charged with "getting lost in unnecessary long latin names" and the aviculturists have been charged "with reporting behaviour that could not have possibly happened because the species does not behave like that", and also with breeding a new strain or hybrid and giving it a new and different name. In recent times this petty bickering and squabbling has largely disappeared and each has come to realize that he can learn a great deal from the other. The aviculturist has become interested in birds as a collective subject and wants to learn more about his favourite species and the other groups, while the ornithologist wants to learn more about the captivity adaptations of his favourite species.

With this now existing arrangement in mind—I would like to put forward a trade of knowledge between Commonwealth countries. I will try to give you some insight into the natural lives of our parrots by presenting to you my observations and field notes on the various species if you will in return pass on to me your observations on your birds in their adopted country. I would be most happy to hear from

any Australian parrot fanciers from any country. If any person does not agree with or does not comprehend anything at all in any of my articles, I would like him to write to me and I will return the compliment as promptly as I possibly can. Although I have kept many species of parrots in aviaries I have specialized of late in field work and I do not profess to have much knowledge of the former, so if any person at any time thinks I am "talking through my hat" please do not hesitate to tell me.

Unfortunately, owing to the widespread distribution, with generic boundaries, of the parrots, I cannot present these articles in a truly systematic sequence, but will have to deal with each species as I meet with it in the field. I do believe, however, that you will find the articles interesting and pleasing to read.

THE CRIMSON ROSELLA

Platycercus elegans

First described by Dr. John Latham in 1781 from a perfect specimen, which was in the possession of Sir Joseph Banks, the Crimson Rosella was for many years called *Psittacus pennanti*, a name which is incorporated in the present popular synonym of Pennant's Parrakeet. Probably one of Australia's most beautiful birds, the Mountain Lory, as it is commonly called, proudly boasts a rich crimson plumage rivalled only by that of the female Eclectus Parrot (*Lorius pectoralis*), relieved by a perfect blending of blue on the shoulders, wing primaries, tail and ear-coverts. A memorable sight is provided by the bold contrast obtained when the bird is sighted midst prevailing green foliage. A perfect example of Nature's protection by camouflage is found in the plumage of immature birds. Young birds on emerging from the nest are green in general plumage with blue ear-coverts and shoulders while some have varying amounts of red on the underparts. Apparently realizing their advantage over their conspicuous elders, young birds tend to be less wary than the adults. Two immature male birds collected by the author in the Snowy Mountains district of New South Wales in 1961 were most striking in colour, being entirely green except for blue ear-coverts and shoulders and a perfectly round crimson patch on the crown of their heads. The young bird generally obtains patchy red underparts after six months followed by the gradual appearance of the black markings on the back. Finally, with an almost complete moult in its second year the bird takes on the adult plumage. In parts of the extensive range of this species this general rule suffers some slight modifications. In parts of New South Wales and Queensland it has been reported that some young birds leave the nest with a dull version of the adult plumage, while in some parts of Victoria and New South Wales the adult plumage is obtained after a complete moult late in the first year.



Distribution of the Crimson Rosella (*P. elegans*.)

Found along the east coast of Australia from Cape York through New South Wales to Victoria and eastern South Australia, and on Kangaroo Island, this beautiful bird enjoys a wide range. It has also been introduced to Norfolk Island. The author found scattered pairs in the vicinity of Mount Gambier, South Australia, in 1960, but failed to locate any birds in the Adelaide region and the reports of typical *Platycercus elegans elegans* in this area are probably brought about by escapees from aviaries. The Adelaide Rosella (*Platycercus elegans adelaidae*) is the representative of the species in this area. Geographical variations are found in different sections of the bird's range and although five subspecies have been listed only three subspecies and one variation to one of these are recognized, the others being dismissed as invalid. The birds from the extreme limits of the range, namely *P.e. melanopectera*

from Kangaroo Island and *P.e. nigrescens* from northern Queensland, show brighter colouring with darkest markings and are generally considered to be the best developed of the subspecies.

Ramsay, in his *Tabular List of Australian Birds*, published in 1888, describes *Platycercus elegans nigrescens* from a specimen taken at Bellenden Ker Range, in North Queensland. Giving its range as North Queensland, he reported it as being smaller in size and darker in colour. In 1961 the author obtained eighteen birds belonging to this variety and compared them with the typical *elegans*. Unfortunately many were of green immature plumage, but the smaller size was definitely evident. The colour of the few mature birds in the group was noted to be more reddish than crimson, while the black back markings were somewhat more pronounced. Another interesting difference noted was that the sheen and fine silky texture of the typical *elegans* was lacking in *nigrescens*.

On the 7th August, 1906, a meeting of the South Australian Ornithological Association was held at the Adelaide Museum. The purpose of this meeting was to establish the affinity, or otherwise, of certain Kangaroo Island birds with their mainland relatives. Mr. A. J. North, of the Sydney Museum, presented various papers at the meeting, one of which dealt with the form of *P. elegans* found on the Island. The Kangaroo Island form was found to be of a brick-red colour rather than crimson, and its back was more strongly marked with black. Mr. North submitted *Platycercus elegans melanoptera* as the name for this new form, and, although it was considered favourably by the members present, more study of specimens was thought to be necessary before a final decision could be reached. Much discussion has since centred around the authenticity of Mr. North's claim but subsequent observations and research were sufficient to induce Mathews to give the subspecies recognition in his *Systema Avium Australasiarum* published in 1927. Although the colour difference noted at the meeting is generally doubted the subspecies is widely accepted. Unfortunately the author could not obtain any specimens from Kangaroo Island and has had to content himself with Museum skins as a means of ascertaining the truth of Mr. North's claims. These skins are inadequate as a basis for putting forward a definite rule but acceptance of the subspecies is advocated.

Platycercus elegans victoriae was tabulated by Mathews in 1912 from a specimen collected at Woori Yallock in Victoria. It was reported to differ from *P.e. elegans* in having a deeper but duller red, especially noticeable on the rump and underparts, while the black markings on the back were more extensive. The range was reported as the south-eastern portion of Victoria. This subspecies has been dismissed as invalid as it differs in no way whatever from *P.e. elegans*.

In 1917, Ashby, from the examination of a specimen taken at

Fleurieu Peninsula in South Australia, tabulated a darker form of *P. elegans adelaidae* and called it *P. elegans fleurieuensis*. These brighter birds occur amongst paler coloured birds and this subspecies has been dismissed as invalid.

The classification of the Adelaide Rosella is a complex and difficult procedure with two schools of opinion being predominant. Some ornithologists maintain this bird as a separate species (*P. adelaidae*) while others regard it as a form of *P. elegans*. Arguments favouring both opinions are readily producible and although the majority seem to favour the acceptance of the new species, the author cannot fully justify this action. Dissection of typical Adelaide and Crimson Rosellas gives no difference in measurements to separate the species while some birds show close similarities in plumage. It has been noted that there is a gap of about 100 miles between the habitats of *P. elegans elegans* and *P.e. adelaidae* (in South Australia). However, many such breaks occur in the distribution of other species and the Superb Parrot (*Polytelis swainsoni*) which will be discussed in a later article, is one example of this. While the author will not put forward any definite conclusion on this matter any observations made by aviculturists who have kept these birds and in particular any records of their interbreeding would be most welcome. *P.e. adelaidae*, which was tabulated by Gould in 1841, has a darkish green back with the characteristic black markings and yellow underparts heavily marked with red which extends above the blue ear-coverts to the head. The young birds pass through the green colouration stages in much the same way as a typical *P.e. elegans*. Named after the city of Adelaide this Rosella is found in the Mount Lofty and Flinders Ranges where the author observed it in 1960.

Platycercus elegans subadelaidae was first examined by Mathews using a specimen collected from Mt. Remarkable District in the Flinders Range in 1912. This bird differs from *P.e. adelaidae* in its paler general plumage while the males lack red colour on the rump. When *P.e. adelaidae* is regarded as a separate species this form is regarded as a subspecies of it.

With its beauty recognized by the earliest naturalists the Mountain Lowry (a name which should be discouraged) has always enjoyed praiseworthy names before the acceptance of *P. elegans*. Latham, nine years after he had first described it, in 1790, submitted the name of *Psittacus pennanti* which was followed the next year by *Psittacus gloriosus* submitted by Shaw and Nodder. Shaw, the following year, submitted yet another title in *Psittacus splendidus*. However, the law of precedence prevailed and with the alteration of *Psittacus* the name given by Gmelin in 1788 came to be accepted and *elegans* became the specific title.

Most types of country in the bird's range are frequented by this foremost member of the Rosellas. It is usually found in pairs or small

flocks in open forest, timbered country bordering creeks and water-courses, heavily timbered mountain gorges and fern gulleys, and cultivated farmlands. The young birds from the last brood often remain with their parents throughout the winter months and they constitute the family parties frequently observed. The general rule is, however, for the immature birds to flock together while the coloured birds remain in pairs or very small groups. Although frequently found feeding in the company of its close relative the Eastern Rosella (*P. eximius*) the two birds do not often interbreed. When they do hybridize the offspring are called Red-mantled Parrakeets (*Platycercus erythropterus*) by aviculturists but the English name should be restricted to them as the scientific title is, to say the least, misleading and incorrect. The author has observed that when a mixed flock is disturbed both species immediately congregate separately in flight and take cover independently, often in opposite directions.

Usually flushed from the ground or found among the outermost branches of a flowering gum tree, this parrot spends most of its time in search of food. Seeds of grasses and herbaceous plants, berries, blossoms, young gum tips and fruit are the main constituents of its diet. While climbing through the blossom or berry laden outermost branches of a tree or bush it keeps up a constant chatter which seems to be an expression of contentment. In the "between meal hours" of the day it will often sit and practise in the warbling of its limited range of notes which, judging from the pride shown, is considered by the owner to be every bit as good as the Nightingale, but in the opinion of the onlooker a lot of improvement is necessary. Favourite foods in the southern districts are the berries of *Pyracantha*, a type related to the Hawthorn, and the nuts of the Cypress Pine (*Callitris endlicheriana*), a considerable noise being created in the cracking of the latter. Besides the chattering call already mentioned the bird has a shrill screech and a pleasant whistle not unlike that of *P. eximius* but readily recognized by its deeper pitch and more resonant quality.

An interesting feature, concerning the distribution of *P. elegans*, is the fact that in parts of its range it is found at very high altitudes. In 1960 when the author was a member of a skiing party at Mount Kosciuszko at 6,000 feet, an expression of admiration was given by several of his companions at the sight of a beautifully coloured cock bird, which had just alighted on a snow-covered tree stump. The sight, admittedly, was one of Nature's gems, a splash of the brightest crimson in a white world. A girl from England on meeting a flock of "Crimsons", while being shown over an Australian sheep station by the author in 1961, remarked that she had never realized such beautiful birds existed. These examples are given so as to impress the esteem in which this bird is held, and the reason for its being so.

The sexes are alike in plumage but may be readily differentiated

when compared in the presence of each other. The cock bird is larger and more heavily built than his mate. A hen bird collected in September, 1961, in Southern New South Wales gave the following measurements :—

	<i>in.</i>
Overall length	13
Tail	7·3
Wing from shoulder to tip (Extended)	9·7

A cock bird collected in the same area a few months previously gave the following comparative measurements :—

Overall length	13·4
Tail	7·4
Wing from shoulder to tip (Extended)	9·85

The head provides the most reliable means of identification with that of the cock bird being larger and with a squarish appearance, while the upper mandible is broad and short, as compared with the small sleek head and narrow bill of the hen.

Some ornithologists and aviculturists prefer to be guided by the white lines under the wings of the hen birds. Whereas, it is true, the general tendency is for the hen bird to show one or two white lines under her wing as compared with two white spots in that position with her mate, the author has on several occasions come into contact with definite hens that did not possess the white lines. A hen bird, that successfully reared two batches of young in his aviaries, was one of these exceptions. This tendency, which seems to be characteristic of the members of the *Platycercus*, *Barnardius*, and *Purpureicephalus* genera, although a very useful method of sexing in the last two mentioned, should be superseded by the previously mentioned means in the case of the Rosellas. Similarly the means of identification using the green spot on the nape of a hen bird is not to be taken as gospel truth as many hen birds will not show this. Very little faith should be placed in the common belief that only the cock bird possesses a voice as this is quite often found to be far from true.

The mating display of *P. elegans* is typical of the members of the genus but seems to vary with individual birds with some slight emphasis placed on different steps in the procedure. In detailing the following mating display the author by no means puts it forward as standard and would appreciate any observations or discussions on the matter. The male bird lowers his wings in the folded position, chatters incessantly, and moves his fanned tail from side to side in a quick, agitated manner. The head he tilts back and holds high, or holds slightly bowed, with breast feathers puffed out. The female after an early indifference usually succumbs to this display of vanity and accepts his proposal. On selecting a suitable nesting site, he feeds his mate regurgitated food and a few days later she goes to nest.

The nesting site chosen by the birds is generally a hole in the trunk of a tree or a hollow limb, the bottom of which is lined with decayed wood. A living tree is usually preferred and, depending on the locality, the *Eucalyptus piperita* is a firm favourite. The hollow may be only a few feet from the ground or it may be at an almost inaccessible height. The eggs are deposited on the decayed wood just inside the entrance or, if the entrance is at a considerable height, the passage to them is often a long one. The entrance itself may be enlarged by the birds tearing away the sides with their bills. A nest will be used by a pair of birds for several seasons depending on the success of its safety from predators, both natural and human. Five to eight, usually five, eggs with a close-grained, smooth, lustrous surface and an oval shape, are laid. The breeding season is from October to January or February in the eastern states, with slight variations as you move west. Crimson Rosellas tend to be double brooded in captivity and in the natural state, if the conditions are ideal.

In captivity, although a beautiful asset to one's aviaries, it cannot be trusted with other members of the genus or in a mixed collection containing birds smaller than itself. It will breed freely in captivity and the author has bred it on numerous occasions, and, contrary to some beliefs, they are capable of breeding before attaining adult plumage. A hollow log or nest-box is used in captivity, while there are many instances of nesting operations being carried out in tins, kettles, and in tunnels made in the floor of aviaries. The hen bird seems to have a quieter disposition and takes more kindly to aviary life than does her proud mate. Three nestlings rescued, when the tree containing their home was felled, and given to the author were such wonderful pets and their exploits, which were so mischievous, became notorious. The two hen birds became very tame and affectionate while the cock bird always remained aloof and wary.

When nesting in captivity they become very pugnacious and the cock bird even exercises his domination over his mate rather savagely at times. The hen bird leaves the nest for a short period in the warmest part of the day and is promptly sent back by her mate when she has completed eating and drinking. The cock bird of a nesting pair in wild life sits in a suitable position of observation and screeches a warning to his sitting mate at the approach of danger.

The most suitable diet for aviary birds appears to be a mixture of sunflower seeds, oats, plain canary seed, and millet in the proportions of 2 : 1 : 2 : 1. A plentiful supply of green food in the form of chickweed, milk thistle, lettuce, and a little silver beet is absolutely essential. A little fruit, especially apple, is relished by these birds ; a factor by no means in their favour in the eyes of orchardists. A bath is always enjoyed but, unless a draught-free, sunlight-filled, enclosure is available to facilitate drying, this should be discouraged in cold weather.

A colourful addition to an aviary and a beautiful inhabitant of the Australian bushland, the Crimson Rosella thoroughly deserves its rank as the foremost of its genus and, as its name so aptly implies, it is a very elegant bird indeed.

BIBLIOGRAPHY

- Systema Avium Australasianarum*, G. MATHEWS.
Proceedings of Zoological Society, London, 1840.
Tabular List of Australian Birds, E. P. RAMSAY, 1888.
The Emu, Vol. VI. October, 1906.
Novitates Zoologicae, Vol. XVIII, 1911.
Australian Parrots, N. W. CAYLEY.
A Working List of Australian Birds, G. MATHEWS.
Birds of Australia, JOHN GOULD.

SPECIAL NOTE

The author wishes to express his gratitude to Miss M. Day of Canberra without whose unselfish assistance this article could not have been presented.

(*To be continued*)

* * *

THE SEASONAL DEVELOPMENT AND CHANGES IN PLUMAGE OF THE WHYDAHs *VIDUA* AND THE WEAVERS *EUPLECTES*

By IAN WOODWARD (Hemel Hempstead, Hertfordshire)

INTRODUCTION

That many birds assume two very distinct liveries in the course of the year, while others, as the spring approaches, become perceptibly brighter in hue, is a matter of common knowledge. But the means by which their changes are affected are by no means so well known, least of all the two groups under discussion.

A few words about the normal procedure of moult will be of use for comparative analysis purposes. The House Sparrow, *Passer domesticus*, displays seasonal changes of plumage to which special attention should be directed. In the spring the male develops a conspicuous black throat and is generally much more vividly coloured than during the autumn and winter months. This change is due to an interesting cause. If a bird be examined directly after the autumn moult the feathers of the throat will be found to be black throughout their length, save at the tips, which are greyish-white; while, similarly, the feathers of the head, and upper-parts generally, have a tawny fringe. As the winter progresses these fringes wear away, so that by the spring the more strongly coloured portions of the feathers are fully exposed. The red breast of the Linnet, *Carduelis cannabina*, is gained in an exactly similar manner.

The common Starling, *Sturnus vulgaris*, again affords another valuable illustration. Both sexes of this bird are coloured alike, and possess distinct summer and winter plumages. These, as in the case of the House Sparrow, are gained, not by a change of raiment, but by the wearing away of the tips of the feathers. After the autumn moult, those of the upper-surface are tipped with golden-brown and those of the under-parts with white, giving the birds the familiar speckled appearance. During the winter months, however, these tips are gradually worn off, so that in the spring and summer months a spotless, glossy, black plumage, with steel-reflections, replaces the earlier spotted dress.

By way of contrast it should be pointed out that in many other birds, which similarly display a more brightly coloured livery in the spring than that worn during the winter months, this brighter garb is assumed, not by the wearing away of the tips of the feathers, but by a complete moult.

DISCUSSION

In most cases, the mere mention of moult in connection with the Whydahs and Weavers brings to mind a phenomenon of mystery, and it is hoped, in some small way, to clarify certain aspects of the subject in this review. Most aviculturists will have no doubt noticed that these two quite different groups, on account of their superficial resemblance to one another, are usually grouped together in avicultural and systematic works. But if examples of each group were to be examined in the hand, it would be seen that these apparent similarities are only common in the change and in the partially black plumage, and in the characteristics and length of the tails. All other outer features, such as the design and length of the tail when in eclipse plumage, and the rather short mandibles, together with other particular habits, vary and differ remarkably.

Contributions from J. Chapin (*Classification of the Weaver Birds*) and Prof. P. Sushkin (*Anatomy and Classification of the Weaver Birds*, 1927) have suggested fairly conclusively that both sexes of these Weavers and Whydahs undergo a post-nuptial moult, and that the adult males also go through a pre-nuptial moult when they come into breeding dress. In addition, I have observed with captive examples of both groups that very often first-year males which, for some reason have not gone through into colour, will not moult at this pre-nuptial stage.

As to how the plumage-change is undertaken is another question, and one which has stirred the minds of ornithologists for years. What is more, there does not appear to be any general agreement as to the biological factors governing the change. A few years back J. Delacour and F. Edmond-Blanc carried out fairly extensive

researches into this phenomenon and presented some interesting theories. One opinion is that directly the feather growth has ceased, it no longer remains connected with the bird's circulatory system, thus closing the arteries of communication. The assumption now taken is that because the individual feather is at this stage "mature", there can no longer exist a colour-influence from the bird's body. Also, because of this state of affairs, any subsequent plumage-changes can only be attributed to general wear and tear (or "feather-wear"), in addition to the influence of environment agents or chemical reactions.

To the inquiring aviculturist this theory is open to wide speculation. For example, it has been long established that certain colours of the plumage have a pigmentation make-up that persists only during the period of the bird's life. In order to clarify this last remark, I should state that what is meant by this is that the colours only remain during ideal conditions; should the environment become abnormal, such as excessive drought or over-crowding of captive enclosures, both factors of which would effect a diet different from normal conditions, then the state of affairs would be quite different. Therefore, it would appear that an influence on these pigments *via* the bird's body may be as a result of the intermediary agency of the highly coloured fat properties which impregnate the zones of insertion of the feathers; this may even continue for a period after the bird's death.

Research has shown that Weavers with red and orange in the plumage have all their internal organs impregnated with identical pigments, the liver in this case having a superabundance.

Another theory which has been put forward suggests that the pigmentation-compound of red, yellow, and black is such that it is reabsorbed into the common out-of-season fawn colour—without moulting. But although this seems doubtful, most aviculturists will have to agree that during the change of plumage very few of the summer-dress feathers are found in their enclosures. It is agreed that all captive and wild birds need a certain amount of roughage, and that birds such as birds of prey obtain this by swallowing their victims' fur and ejecting it in the form of pellets. It is ridiculous to suggest that *Vidua* and *Euplectes* do this.

Observations made by research biologists in recent years of birds in both captivity and in their own element, seem generally to conclude that the change from the eclipse to the nuptial dress is coincident, either with a partial moult or else with none at all. From the light of recent research it would also appear that the operation of this change is dependent on the conditions to which the bird is subjected, and that by changing these conditions it is possible to retard, stop, or even reverse the change.

Certainly, examination of recently acquired dead birds confirms that, although in some cases the feathers of the neck and the back

change normally, other examples in the process of changing appear to do so from the sombre fawn and brown colours to the black, red, and yellow without moulting.

In spite of all our present knowledge, we cannot say with certainty how the phenomenon works in practice. Furthermore, we cannot entirely reject the possibility that the plumage change of colour occurs *after* their mature development, no matter how strange the idea may at first appear. This subject is certainly wide open for further research.

* * *

NEWS FROM CHESTER ZOO

By A. W. E. FLETCHER

Since the Society is paying its annual visit to Chester Zoo in June, it was decided in this first of a series of articles to describe some of the birds in the collection which may be of special interest to members.

The main Bird House is tenanted by a mixed collection of the parrot family, pigeons and various softbills, and tropical birds. There are pairs of Eclectus Parrots, King and Yellow-naped Parrakeets, though the latter are thought to be two cocks. Two aviaries are devoted to Lorikeets of which we have Swainson's, Ornate and Scaly-breasted and, at the time of writing, early in April, several pairs are showing interest in nest-boxes.

Of the pigeons there are a pair each of Nutmeg and Imperial Fruit Pigeons. The last named nested last year but did not hatch. Touracos are represented by Buffon's, Hartlaub's, and the Grey Touraco or Go-Away-Bird, and there are also a pair of Violet Plantain-eaters (*Musophaga violacea*).

Both species of Cock-of-the-Rock are housed here, our old Orange male which has come through the winter wonderfully well with only the aid of an infra-red lamp, and also a specimen of the Scarlet, which is either a female or an immature male. The betting is in favour of the latter, and the question will probably be settled by the date of the Society's visit.

Other specimens on view in the Bird House are a Variegated Bittern from South America and a Kookaburra, both of which have aviaries to themselves due to uncertain tempers; a group of small softbills including Silver-Blue Tanagers, Black-headed Sibias, and a Scimitar Babbler; a nice pair of Swainson's Toucans and a number of the very attractive Guatemalan Green Jays, whose plumage has turned blue in captivity. There is also a Venezuelan Wood Rail which tends to

keep itself out of sight, like all members of this skulking family, and a small group of Crested Guineafowl from the Congo can be seen in one of the flights.

In the long flight immediately behind the Bird House are specimens of the Crested Curassow, Vulturine Guineafowl, and a single Congo Black Guineafowl thought to be the only one in this country. Sharing the flights are a number of Steller's and other members of the jay family, and to round off a somewhat mixed bag, there is a Red-billed Hornbill, a Grey Hornbill, and a Coucal.

Across the way in the Parrot House are five species of Macaw, Severe, Military, Blue and Yellow, Red and Yellow, and Red and Blue ; six species of Cockatoo, Funereal, Greater Sulphur-crested, Moluccan, Leadbeater's, Bare-eyed, and Roseate, and six species of parrot, African Grey, Amazon (six kinds), Senegal, Dusky, and Maximilian's. Also housed here are Pileated Parrakeets, Black-headed and White-bellied Caiques, and Queen of Bavaria and Blue-crowned Conures. The large flight at the end of the Parrot House is filled with a particularly colourful group of birds consisting of five of the large Macaws, a pair of Black-winged Peafowl, and a pair of Black-necked Cranes. Other members of the parrot family housed in aviaries elsewhere are Princess of Wales, Barraband's, and Pennant's Parrakeets, as well as the more common ones, and a number of lovebirds, mostly Fischer's.

In the pheasant pens which are situated alongside the Parrot House the outstanding exhibit is a magnificent pair of Impeyans, as well as pairs of Elliot's and Swinhoe's, and pairs and trios of Golden, Lady Amherst's, and Silver.

New to the collection and housed in the long aviaries by the house is a pair of Sclater's Crowned Pigeons, the largest of the Columbigiformes. These superb birds are the size of a hen turkey, coloured in different shades of blue and with a large lace-like crest on their heads. Mainly ground-living, they perch only when alarmed and at night.

To describe in further detail the species of crane, waterfowl, birds of prey, and many other families which make up the collection would take up too much space. We have in the Gardens almost 700 birds of forty-two families, above 150 species in all.

I am warned against predicting breeding results, it being a dangerous thing to count your Emus before they are hatched ! The weather now in the first week of April is still bitterly cold and it would be foolish to be too optimistic. It is hoped that on the occasion of the Society's visit there will be some interesting new arrivals, but no doubt there will also be disappointments to record.

LONDON ZOO NOTES

By J. J. YEALLAND

Two species new to the collection have recently been received. They are a Curl-crested Aracari (*Pteroglossus beauharnaesi*) and an Equatorial Dacnis (*Dacnis lineata aequatorialis*).

The Curl-crested Aracari, a native of the forests of upper Amazonia, has been kept by the Zoological Society of New York at Bronx Park since early in 1960, but not, so far as I know, elsewhere. Nothing appears to be known of its natural life and habits.

A remarkable feature of this species is the form of the head feathers, the distal half of each feather being a thin, curled, and glossy black lamella, bearing, as Gould said, some resemblance to fine ebony shavings. Some feathers that have been moulted are split at the centre of this scale-like tip and each half curls round in a ram's horn fashion, but it is difficult to tell whether all are like this. Feathers on the nape and at the sides of the head are similarly lamellate at the tip, but are not curled and are more lanceolate in shape.

The specimen of Equatorial Dacnis is a female or immature male, being of a dull yellowish-green with yellow on the belly, at the sides of the breast and, apparently, under the wings. The adult male is black, emerald green, and yellow. There are three races of *Dacnis lineata*, the White-vented (*D. l. lineata*) of much of tropical South America; the Yellow-vented (*D. l. egregia*) of Colombia, and the rather similar *D. l. aequatorialis* of Ecuador.

Other arrivals of especial interest are two Common Rheas that were bred at Frankfurt Zoo during 1961, an immature owl of the genus *Scotopelia* collected in Sierra Leone, four White-bellied Doves (*Leptotila jamaicensis jamaicensis*), and a pair of Red Ground or Mountain Doves (*Oreopeleia montana*), some Humming Birds, notably *Heliactin cornuta*, the Sun Gem; *Calliphlox amethystina*, the Amethyst; *Heliothryx aurita*, the Fairy; and *Heliomaster squamosus*, the Stripe-breasted Star-throat.

A specimen of Jerdon's Chloropsis, Leafbird or Fruitsucker, presented by Miss Knobel, appears to be the first since many years ago.

Kenya Eagle-Owls and Spectacled Owls are nesting. An Australian Pelican received in June, 1924, has died.

COUNCIL MEETING

A Council Meeting was held on 12th March, 1962, at the Windsor Hotel, Lancaster Gate, London, W. 2.

THE SOCIETY'S MEDAL

The Society's Medal has been awarded to :—

Mr. J. E. Collins, for breeding the Yellow-fronted Woodpecker, *Melanerpes flavifrons*, in 1961.

Sir Richard Cotterell, Bt., for breeding the Black-bellied Firefinch, *Lagonosticta rara*, in 1961.

Mr. H. Murray, for breeding the Cayenne Tanager, *Tangara cayana*, in 1961.

Mr. K. A. Norris, for breeding the Rufous-bellied Niltava, *Niltava sundara*, in 1961.

THE EVELYN DENNIS MEMORIAL MEDAL

A new medal, to be known as The Evelyn Dennis Memorial Medal, has been instituted. It will be awarded from time to time, at the discretion of the Council, to members of the Society for an outstanding contribution to aviculture.

ARTHUR A. PRESTWICH,
Hon. Secretary.

* * *

BRITISH AVICULTURISTS' CLUB

The seventy-seventh meeting of the Club was held at the Windsor Hotel, Lancaster Gate, London, W. 2, on Monday, 12th March, 1962, following a dinner at 7 p.m.

Chairman : Mr. K. A. Norris.

Members of the Club : Miss P. Barclay-Smith, A. W. Bolton, Miss K. Bonner, W. Brain, A. E. Butler, M. D. England, Miss R. Ezra, Mrs. R. Goodman, L. W. Hill, Miss R. Hill, Dr. W. C. Osman Hill, Dr. E. Hindle, F. E. B. Johnson, Terry Jones, Dr. S. B. Kendall, Miss E. M. Knobel, R. F. Marshall, G. S. Mottershead, S. Murray, Sir Crawford McCullagh, Bt., W. R. Partridge, J. W. Peel, A. A. Prestwich, R. C. J. Sawyer, H. A. Snazle, T. Spence, E. O. Squire, Newton Steel, A. J. Swain, F. N. Tomlinson, Mrs. H. M. Vane, P. L. Wayne.

Members of the Club, thirty-three ; guests, seventeen ; total, fifty.

M. D. England showed colour slides to illustrate "To Spain for birds again".

Meetings and dinners during the 1962-63 session have been arranged at the Windsor Hotel for the following dates :

Monday, 10th September, 1962.

„ 12th November, 1962.

„ 7th January, 1963.

„ 11th March, 1963.

The annual subscription due on 1st January, 1963, is 10s.

ARTHUR A. PRESTWICH,
Hon. Secretary.

* * *

NEWS AND VIEWS

Miss P. Barclay-Smith and Jean Delacour are representing the Society at the XIII International Ornithological Congress, to be held at Cornell University, Ithaca, New York, 17th to 24th June, 1962.

* * *

In 1951 G. Ruddle, Fullarton, South Australia, bred a blue mutation of the Princess of Wales's Parrakeet. It was eventually added to David West's collection in California. It proved to be a male and in 1953 was mated to a hen which immediately laid five eggs. From these two normally-coloured young were successfully reared : one egg was clear and the other two failed to hatch (see *Avicult. Mag.*, 1953, 164). I cannot recollect hearing further of these birds.

Now, according to an account in *Bird Keeping in Australia*, 1962, 23, Bill McMillan, of Croydon, Australia, has bred another blue. The clutch consisted of five eggs, only one of which was fertile—that which produced the blue. In the Ruddle event the blue was bred in an aviary containing a number of Princess and its parentage was in some considerable doubt. In the present case, however, the parentage is definite, so we may reasonably hope for the production of further blues.

* * *

In recent letters Curt af Enehjelm, Helsingfors, gives some of his breeding results for last year. He writes : " I had a tolerably good year with my birds. Less common results were ten Yellow-rumped and one Chestnut-breasted Mannikin, two Lavender Waxbills, one Yellow-bellied Waxbill (*C. melanotis quartinia* or *kilimensis* ?), two *Lophospingus pusillus*, and two Galapagos Doves. Parson Finches, Long-tailed and Masked Grassfinches, Blue-headed Parrot Finches, Common Fire Finches, small Avadavats, and Bicheno's Finches were bred in large numbers. Also about twenty Green-backed Parrotlets, fifty to sixty Diamond Doves, including silver, five Emerald-spotted and three Tambourine Doves : and, of course, Zebra Finches,

Bengalese, and Budgerigars. I might mention that I got my Galapagos Doves from the Copenhagen Zoo on 15th November. They started nest-building immediately and on the 25th there were two eggs. Both eggs hatched on 6th December and the young left the nest on 18th to 19th. To-day (20th December) there is the first egg of the second nest. Quick work ! ”

* * *

An event which will undoubtedly prove of great interest to members, and indeed to all interested in birds, is the opening of The Tropical Bird Gardens, Rode, Nr. Bath, Somerset, which took place on 23rd May, 1962.

Mr. and Mrs. D. H. S. Risdon, together with Mr. Michael King, are developing the 17½ acres garden of the former Rode Manor. Their aim is to give the public the opportunity of seeing birds of widely different species in natural surroundings. Many will be at liberty, others will be housed in very large aviaries designed to blend with the wooded gardens ; and in certain cases visitors will be able to walk among the birds without intervening netting.

A descriptive report of the gardens will be published in a future number of the MAGAZINE.

* * *

This being the time of year when news items are scarce it may not be out of place to give a few details of quail breeding in Japan. Probably few members are aware of the extent to which the Japanese Quail, *Coturnix coturnix japonicus*, has been domesticated. Its breeding for the sake of its meat and eggs has proved such a success that it has become quite a large industry. In recent years the annual production of quail has fluctuated between 1,000,000 and 2,000,000. The great majority are incubated by electric incubators in three hatcheries in Toyohashi City. The largest hatchery is the Suzuki Hatchery, where 35,000 breeding quail are always kept. The incubation period is sixteen or seventeen days. The sexing of the day-old chicks is done by examination of the rudimentary copulatory organs, popularly known as the Japanese method of sexing chicks. Only female chicks are sent to customers. Some male chicks are raised for meat, but the majority are disposed of.

By the time they are thirty days old the young quail are almost as large as adults and are then transferred to the laying rooms. They lay the first egg when thirty-five to sixty days old, usually when fifty days old. During eight to twelve months from that time they continue to lay. The laying efficiency for the first year is 80 per cent, so that the number of eggs laid in the first year runs to between 250 and 300.

The laying quail, hatched in the spring, keep laying until the following spring. During the whole period they are kept, day and night, under artificial light. In the summer season the demand for eggs is greatly reduced and the majority of the quail older than one year are then disposed of for the purpose of meat.

Members interested in this subject are recommended to read the paper "Quail Breeding in Japan" by Yoshimaro Yamashina, published in the April, 1961, number of the *Journal of the Bombay Natural History Society*, from which these facts are extracted.

A. A. P.

* * *

REVIEWS

COUNTRY BOOK. A Personal Anthology. By MACDONALD HASTINGS. George Newnes, Ltd. London, 1961. Price 30s. net.

This delightful book is frankly autobiographical and traces the author's gradual development from being born in a city to his life in the country and, as a countryman, the aim of this anthology is to share the happiness of a country life both with people of his own generation and also new entries to the field.

Macdonald Hastings is well known to a very wide public as a popular broadcaster who appears regularly on BBC television in the *Tonight* programme; being also a novelist and editor, very varied gifts have been brought together in the creation of an anthology woven into the pattern of his own life. The extracts are chosen from Britain's incomparable literature on the subject, and are divided into four sections—sowing, growing, harvesting, and ploughing. The passages are chosen mainly to illustrate a love for country things and unfortunately the few birds mentioned are mostly game-birds. These include *Perdix the Partridge*, by Llewelyn Powys, a graphic description of the ways of partridges, and a tribute to the song of the Blackbird in *A fine thing for England*, by a somewhat unexpected author—Theodore Roosevelt.

The photographs illustrating the book date from the time when the author was editor of *Country Fair* and about two-thirds of them are by John Gay. Those dealing with birds include a nest of young Shrikes, a Rook in her nest of sticks, and the heads of a gobbler turkey and his hen posed like a family group in a Victorian portrait album.

E. H.

* * *

THE ANNUAL SUBSCRIPTION

In 1894 a small group of British and foreign bird enthusiasts met in Brighton with a view to forming a society devoted to their interests. The north of England already had the United Kingdom Foreign Cage Bird Society (founded in 1890) and London had the Cage Bird Club (founded in 1893), publishing Reports and Transactions respectively. Now it was to be the turn of the south.

Our Society was duly founded with an initial membership of fifty-two ; the annual subscription being 5*s.* with 2*s.* 6*d.* entrance fee. The first number of the AVICULTURAL MAGAZINE was published in November, 1894. The first volume, consisting of 132 pages, was printed at a cost of £39 2*s.* 6*d.*, and, as by the end of the first year the membership had increased to 175, the accounts showed a small surplus.

With an increase in the size of the MAGAZINE and the inclusion of coloured plates an increase in the subscription was found to be necessary and so, in 1898, it was raised to 7*s.* 6*d.*, with a further rise to 10*s.* in 1900. In 1918, with changed values occasioned by the war, the subscription was raised to £1, and there it has remained ever since—for forty-four years !

Since the last war the sponsors of every journal of similar standing to the AVICULTURAL MAGAZINE have found it necessary substantially to increase the annual subscription. The Avicultural Society alone has maintained the old rate. But during the past few years the MAGAZINE has been published at a considerable loss—costs of production have risen by no less than 40 per cent in the last two years : and there is no reason to suppose they will not rise further. Council has decided that the time has now come to be realistic and so, with very great reluctance, the annual subscription due on 1st January, 1963, will be increased to £2 ; Life Membership £25.

It is hoped that members will realize that Council has been forced to this decision by reasons beyond its control. Some members, it is hoped that the number will be very small, may feel that the increase is more than they can reasonably afford. It will be greatly appreciated if those members who do not intend renewing their subscription for next year would kindly inform the Hon. Secretary of their wish to resign their membership.

ARTHUR A. PRESTWICH,
Hon. Secretary and Treasurer.

*

*

*

SPECIAL BIRD FOODS



FAMOUS
SINCE
1823

Universal (Pictorial Packet)	Fortifier	Perfort	Insectivorous (Red Packet)	Fort-Egg and Colorfort
3 oz. 10½d.	3 oz. 10½d.	3 oz. 10½d.	3 oz. 10½d.	3 oz. 10½d.
1 lb. 1/10½	1 lb. 2/-	1 lb. 2/-	1 lb. 3/-	1 lb. 2/3
1 lb. 3/6	1 lb. 4/-	1 lb. 4/-	1 lb. 6/-	1 lb. 4/6
3½ lb. 11/9	3½ lb. 13/6	3½ lb. 13/6	3½ lb. 21/-	3½ lb. 15/-
7 lb. 22/9	7 lb. 26/6	7 lb. 26/6	7 lb. 38/8	7 lb. 29/9
28 lb. 85/-	28 lb. 98/-	28 lb. 98/-	28 lb. 154/-	28 lb. 112/-

HEALTH GRAINS

C.L.O. Rearing and Condition Food (Condition Seed)

1 lb. 1/-	14 lb. 20/-
1 lb. 2/-	28 lb. 38/6
3½ lb. 5/6	56 lb. 75/-
7 lb. 10/6	1 cwt. 140/-

3 oz. 1/-
1 lb. 4/6
3½ lb. 15/6
7 lb. 30/-

"GREENSTUFF"

A dehydrated form of green food consisting of lettuce, spinach, carrot, etc., readily taken by all birds. Packets 1/- & 3/6, also sold in bulk.

When sending for above Birdfoods please add for part cost of postage :
 1 lb. pkts. 6d. 1 lb. pkts. 1/- 3½ lb. and 7 lb. 2/- 28 lb. and over Carriage Paid.

MEALWORMS

"MARBA" DUTCH BRED (small type)

"SANTA GERMAN BRED" (large type)

Whether you prefer the small Dutch mealworm or the larger German type, we can give you the finest service obtainable, with shipments arriving twice weekly. Dispatch guaranteed same day as orders received.

1 oz. 3/-	2 oz. 4/9	4 oz. 8/-	8 oz. 14/-	1 lb. 23/6
Also in original Boxes as imported Nett weight guaranteed				
2 lb. 45/-	3½ lb. 62/6	6½ lb. £6 0s. 0d.	All Carriage Paid.	

MAGGOTS

We sell only the best liver-fed maggots, specially re-cleaned and ready for immediate use for bird feeding. Packed in bran. No mess or smell.

2 oz. 3/4	4 oz. 4/6	8 oz. 7/-	1 lb. 10/6
-----------	-----------	-----------	------------

FEEDING SUNDRIES

	½ lb.	1 lb.
Dried Flies (Chinese)	5/-	9/6
Silkworm pupae (Whole)	3/9	6/6
(Ground)	4/-	6/9
Dried Dragonfly larvae	6/6	12/6
Dried Shrimp (Fine, Medium, or Coarse)	2/3	3/6
Ant Eggs	13/6	25/-
Pure Dried Egg	6/6	12/6
Dried Rowan Berries (Whole)	2/9	4/6
(Crushed)	3/-	4/9
Pure Breadcrumbs (Fine, Medium, or Coarse), far superior to biscuit meal	2 lb. 3/- ; 4 lb. 5/6 ; 14 lb. 17/6 ; 28 lb. 28/-	
"Egg-crumbs," guaranteed to consist of 90 per cent breadcrumbs and 10 per cent pure egg	2 lb. 5/6 ; 4 lb. 10/6 ; 7 lb. 17/6	

ALL ABOVE PRICES ARE POST PAID

E. W. COOMBS, LTD.

255 Walderslade Road, Chatham, Kent

Phone : Chatham 61068

Grams : Avicult, Chatham, Kent

BOOKS on BIRDS

*Catalogue
on
request*

WHELDON & WESLEY LTD.

LYTTON LODGE, CODICOTE,
NR. HITCHIN, HERTS.

Telephone : CODICOTE 370.

An absolute international novelty

For **simple respiratory acariasis**
and that that is associated to
the most common complications.



"**CANDIO ACAR.**", has been tested, approved
and been **adopted** by the **RESEARCH CENTER
FOR BIRD'S DESEASES (C.R.M.U.)** of the
University of Parma, controlled by
Prof. ITALO VACCARI.

**ACARICIDE CANDIOLI
SPRAY
FOR ORNITHOLOGY**

CANDIO - ACAR

International Patent

for all cage birds and for pigeons.

ISTITUTO CANDIOLI s. p. a.

Veterinary Section - Turin, Italy - Founded in 1882.

SOLE AGENTS are needed for our free zones.

When Visiting the

COTSWOLDS

AVICULTURISTS ARE WELCOME

TO

“BIRDLAND”

*Set in the charm of an
old English Garden at
the lovely Village of*

BOURTON-ON-THE-WATER

CANDIDATES FOR ELECTION

- JAMES BATTERSBY, 30 Church Street, Clayton-le-Moors, Nr. Accrington, Lancs. Proposed by J. H. Mortimer.
- MAX A. BEAUMONT, 136 Charles Street, Launceston, Tasmania, Australia. Proposed by Miss K. Bonner.
- JOSEPH BELL, New York Zoological Park, New York 60, New York, U.S.A. Proposed by William G. Conway.
- Dr. PHILIPPE BÉRAUT, 64 Rua Golf Club, Rio de Janeiro, Brazil. Proposed by A. A. Prestwich.
- Mrs. AMY P. BOBLET, 11118 South Raymond Avenue, Los Angeles 44, California, U.S.A. Proposed by A. A. Prestwich.
- C. B. B. CROKER, 77 Rivington Avenue, Blackpool, Lancs. Proposed by A. A. Prestwich.
- ALFRED G. DEACON, Sun Valley, Woburn Road, Marston Moreteyne, Beds. Proposed by J. W. Bushby.
- J. K. EVANS, 110 Church Street, St. Helens, Lancs. Proposed by J. A. Cutler.
- PROFESSOR HERVÉ HARANT, Jardin des Plantes, 16 Rue Cardinal de Cabrières, Montpellier, France. Proposed by Miss K. Bonner.
- R. L. HENSHAW, 10 Althan Road, West Derby, Liverpool, 11. Proposed by Miss K. Bonner.
- GORDON HUBBELL, D.V.M., Crandon Park Zoo, 4000 Crandon Blvd., Miami 49, Florida, U.S.A. Proposed by Otis Wade.
- B. G. JONES, 44 Crescent Road, Kingston Hill, Surrey. Proposed by A. A. Prestwich.
- JOHN E. RATCLIFFE, 80 Streatham Court, Streatham High Road, London, S.W. 16. Proposed by A. A. Prestwich.
- ALLAN RUDD, 73 Fenton Street, Princeville, Bradford 7. Proposed by Miss K. Bonner.
- CLIFFORD SMITH, Heatherlands, Keighley Road, Denholme, Nr. Bradford, Yorkshire. Proposed by C. Bates.
- JOHN K. TERRES, P.O. Box 571, Chapel Hill, North Carolina, U.S.A. Proposed by Miss K. Bonner.
- LARS WILLUMSEN, Calgary Zoological Society, St. George's Island, Calgary, Alberta, Canada. Proposed by T. R. Baines.

NEW MEMBERS

The twenty-three Candidates for Election in the March–April, 1962, number of the AVICULTURAL MAGAZINE were duly elected members of the Society.

CHANGES OF ADDRESS

- Inspector J. W. CARSS, to P.O. Box 91, B.P. Police, Francistown, Bechuanaland Protectorate, South Africa.
- Miss C. PEARL CHAMBERLAIN, to Buckle's Wood, North Chailey, Lewes, Sussex.
- STANLEY CLAYTON, to Stonefield, Westbrook, Nr. Newbury, Berks.
- R. C. UVEDALE CORBETT, to Ovington House, Nr. Alresford, Hants.
- KEVIN DOOLEY, to 237 Marrickville Road, Marrickville, Sydney, N.S.W., Australia.
- H. P. VAN HEYST, to Huize "de Kimpenkamp", Pasplein nr. 9, Doetinchem, Holland.
- Miss E. MAUD KNOBEL, to 2 Berkley Road, Regent's Park Road, London, N.W. 1.
- C. R. PARTRIDGE, to Oaklands, Braughing Friars, Nr. Ware, Herts.
- Mrs. L. N. PHIPPS, to Hillrise, Harcourt Hill, Oxford.
- WILLIAM C. H. SPOONER, to 104 Hill Top, West Bromwich.
- J. H. SWIFT, to The Croft, Maxstoke Lane, Meriden, Coventry, Warwickshire.
- R. A. TAYLOR, to London Road, Wickford, Essex.
- G. R. WALKER, to 2E Branksome Wood Road, Bournemouth, Hants.

CHANGE OF NAME AND ADDRESS

Miss DIANA HOLGATE, to Mrs. DIANA RUBERY, Barrow Cottage, Bollinway, Hale, Cheshire.

CORRECTION

The address of J. E. HARRIS is still Wood Lawn, Uttoxeter, Staffordshire. It is N. J. L. HARRIS who has changed to Dimble Croft, Alton, Stoke-on-Trent.

DONATIONS

(Coloured Plate Fund)

	£	s.	d.
Avicultural Society of South Australia .	10	0	0
E. M. Boehm	8	15	0
Mrs. J. W. Flintoft		15	0
M. G. Hooley		5	0
F. E. B. Johnson	1	15	0
Natal Zoological Gardens		19	0
P. G. Paris	1	0	0
W. R. Partridge		15	0
Dr. N. P. Sholar	1	15	0
A. N. C. Thorp		5	0

MEMBERS' ADVERTISEMENTS

The charge for Members' advertisements is THREEPENCE PER WORD. Payment must accompany the advertisement, which must be sent on or before the 15th of the month to A. A. PRESTWICH, GALLEY'S WOOD, EDENBRIDGE, KENT. All members of the Society are entitled to use this column, but the Council reserves the right to refuse any advertisements they consider unsuitable.

For Indian Birds buy direct from Baidyanath Acooli, 8/5a Barrackpore Trunk Road, Calcutta 2, India.

Wanted. *Avicultural Magazine*, back issues, single volumes or runs:—
J. E. Holzbach, 229 Maywood Drive, Youngstown 12, Ohio, U.S.A.

598.20542
A94
Birds

DIVISION OF BIRDS

AVICULTURAL MAGAZINE

158



CONTENTS

	PAGE
Some Notes on my Blue-headed Waxbills (<i>Uraeginthus cyanocephalus</i>), (with coloured plate), by DEREK GOODWIN	117
The Parrots of Australia : (2) The Eastern Rosella (<i>Platycercus eximius</i>), by JOSEPH M. FORSHAW	129
Sidelights on the Nesting Behaviour of the Key West Quail Dove, by Professor CARL NAETHER	136
Notes on the Display and Behaviour of Peter's Twinspot and the Brown Twinspot, by C. J. O. HARRISON and B. P. DORMER	139
Breeding Behaviour of the Chinese Painted Quail prior to the Chick Stage, by IAN D. WOODWARD	143
Breeding Eagle-Owls at Chester Zoo, by A. W. E. FLETCHER	146
London Zoo Notes, by J. J. YEALLAND	147
News and Views	148
Review	151
Correspondence	152

THE AVICULTURAL SOCIETY

Founded 1894

President : D. Seth-Smith, Esq.

**Hon. Secretary and Treasurer : A. A. Prestwich, Galley's Wood,
Edenbridge, Kent.**

Assistant Secretary : Miss Kay Bonner.

Membership Subscription is £1 per annum, due on 1st January each year, and payable in advance. Life Membership £15. Subscriptions, Change of Address, Names of Candidates for Membership, etc., should be sent to the Hon. Secretary.

THE AVICULTURAL SOCIETY OF AMERICA

Hon. President : Mr. Jean Delacour.

President : Mr. Paul Schneider.

**Secretary : Mr. Otis Wade, 1806 Redesdale Avenue, Los Angeles 26, Calif.
U.S.A.**

The annual dues of the Society are \$2.50 per year, payable in advance. The Society year begins 1st January, but new members may be admitted at any time. Members receive a monthly bulletin. Correspondence regarding membership, etc., should be directed to the Secretary.

THE AVICULTURAL MAGAZINE

The Magazine is published bi-monthly, and sent free to all members of the Avicultural Society. Members joining at any time during the year are entitled to the back numbers for the current year on the payment of subscription. All matter for publication in the Magazine should be addressed to :—

**The Editor : Miss Phyllis Barclay-Smith, 51 Warwick Avenue, London,
W. 9. Telephone : Cunningham 3006.**

The price of the Magazine to non-members is 7s. 6d., post free, per copy, or £2 5s. for the year. Orders for the Magazine, extra copies and back numbers (from 1917) should be sent to the publishers, Stephen Austin & Sons, Ltd., Caxton Hill, Ware Road, Hertford, England. Telephone : Hertford 2352/3/4.



BLUE-HEADED WAXBILL.

AVICULTURAL MAGAZINE

THE JOURNAL OF THE AVICULTURAL SOCIETY

Vol. 68.—No. 4.—All rights reserved.

JULY-AUGUST, 1962

SOME NOTES ON MY BLUE-HEADED WAXBILLS

(*Uraeginthus cyanocephalus*)

By DEREK GOODWIN (London, England)

A glance at Miss Talbot-Kelly's plate will show that this species is one of the loveliest of waxbills. Not even the Violet-ear is *more* beautiful. The lovely delicate blue of the male's head, breast, and flanks is almost, but not quite, the same shade as that on the Blue-breasted Waxbill (*Uraeginthus angolensis*), it being, to my eye, just a *very* little paler if the two species are seen side by side, or nearly so. However, the blue of both appears paler or darker according to the light. The young have the base of the upper mandible and a considerable amount of the under mandible grey, the rest black. Their eyes are dark greyish. The young males have pale greyish blue on forehead, face, and upper breast; the young female has an even paler blue on face and forehead only.

The Blue-headed Waxbill (*Uraeginthus cyanocephalus*) has a limited range in eastern Africa. Since I started keeping Blue-breasted Waxbills (see Goodwin, 1959) I had often looked at museum skins of the Blue-headed Waxbill or Blue-capped Cordon-bleu, as it is sometimes called, and thought how much I should like to have some live ones to keep and study. I had, however, done this in the spirit in which one wishes one could win a million pounds, discover the secret of eternal youth, or live in a world where the good fared better than the wicked. I did not think that such a seemingly vain fantasy would ever be gratified. True, a few of this species reached Europe in those far-off golden days of aviculture between the two World Wars and one of our members actually succeeded in breeding them (Decoux, 1931), but it never occurred to me in my wildest dreams that any more were likely to be imported or that I should be able to afford to buy them if they were. But so it was.

On 28th September, 1961, scanning the advertisements in *Cage Birds*, I saw a specially displayed piece in the Toddington Bird Farm's advertisement that ran roughly (I quote from memory), "Two pairs only Blue-capped Cordon Bleus, very rare, £4 10s. per pair." The

price seemed so reasonable that I feared for the condition of the birds and in any case I was in some conflict about buying them owing to lack of space in my little bird room. I consulted my friend Colin Harrison, being reasonably sure that he would encourage me to buy them. The decision made, I was filled with fears lest someone else should get there first. Whilst I hastily made arrangements to take an afternoon's leave, Colin phoned the proprietor of the Todddington Bird Farm, who agreed to reserve the birds for me until I called for them that afternoon.

INDIVIDUALS AND THEIR HISTORY TO DATE

I arrived at the Todddington Bird Farm about three in the afternoon. The four Blue-headed Waxbills were, if not in "show condition", at least in very much better shape than I had feared they might be. I was indeed favourably impressed with the establishment and the condition of most of the stock, in very strong contrast to my feelings about most other bird dealers I have visited, with the honourable exception of the Keston Foreign Bird Farm. I did not feel sure (wrongly as it turned out) that the Blue-heads, which were moulting from juvenile to adult plumage, were two cocks and two hens as the latter had one or two blue feathers ominously far back on their crowns. Possibly some hormonal imbalance induced by their capture and subsequent treatment had caused blue feathers to grow "in the wrong place". At all events the one that survived now has blue only on the forehead as have all the few museum skins of wild hen Blue-heads that I have examined.

Arrived home, I placed the Blue-heads in a cage in a well-lighted room and left the light on all night so they could see to feed. Next morning I placed one pair (Unringed Male and Unringed Female) in my bird room. This is a rather small, but very well lighted, room that I have fitted up as an indoor aviary. It has a small electric bar-heater, covered with a wire netting screen on which many of the waxbills like to sit and toast themselves, and a letter-box sized "Judas-hole" is cut in the door so that I can sit outside in the darkened corridor and observe the inmates. This room they had to share with several Blue-breasted and Golden-breasted Waxbills (*Amandava subflava*), two Rosy-rumped Waxbills (*Estrilda rhodopyga*), four Black-capped Waxbills (*E. nonnula*), and four Avadavats (*Amandava amandava*). The other pair of Blue-heads I ringed (Blue Male and Blue Female) and placed in a large cage in my bedroom.

From the first Blue Female never looked very well. I removed her into a smaller cage in front of an electric heater in another room. This may have been an unwise move, since the morning after she flew hard against the wire when I went near the cage and fell down in an apparent fit. She only partially recovered from this and died on

5th October. An autopsy showed a haemorrhage at the back of the skull, also the fact that she was, despite the blue feathers on her crown, a female.

Previous to this disaster this pair had been allowed to fly freely in the bedroom by day. Being unmarried I am able to put "first things first" when it is a question of weighing adequate interest and exercise for captive birds against the odd dropping on the carpet. The first night I found them roosting on the curtain rail but, after they had been frightened off into the darkness and then caught and put back into the cage (the light being then put on), they went back to roost in the cage by themselves each evening without any trouble. I have found Blue-breasted Waxbills and Java Sparrows equally easy to manage in this manner also.

After he was alone Blue Male seemed ill at ease and was constantly either singing, or attempting to do so (having not yet developed the full song), or giving the contact call. At risk therefore of having a "triangle situation" develop I put him into the bird room with the others. This was about the middle of October and although they had not yet come fully into adult plumage Unringed Male and Female were already firmly paired, showing signs of nesting and the male frequently displaying.

By 26th October the pair had placed a good deal of material in a nest basket. This, and indeed most of their activities, greatly interested the odd male Blue. He frequently went to their nest basket, examined it, and pulled out the pieces of dry grass, often displaying (by himself) with a piece when he had done so. If either of the pair noticed these activities, as they usually did, he or she would fly at once to the scene and Blue would retire hastily. The Unringed Male would also fly to Blue if he saw the latter displaying * and alight near him, evidently in a disapproving manner, for Blue would at once cease displaying and move off.

On 27th October, however, an amusing incident (at least to the watcher) occurred. Blue was displaying half-heartedly by himself when Unringed Male, seeing him, at once flew and alighted on a perch close to his, obviously expecting Blue to cease displaying and retreat as usual. Instead, Blue hopped on to the same perch, sidled along to within an inch or so of Unringed Male, and displayed very intensely at him. Unringed Male appeared completely nonplussed by this unprecedented behaviour, and remained motionless with erected head feathers and a puzzled expression. Thereafter Blue often refused to be intimidated by Unringed Male even although on the few occasions that they actually fought Unringed Male won.

Although the female often attacked Blue when he displayed to her Unringed Male seemed to be inhibited from attacking his rival when

* Where unqualified, "display" means the Stem Display (q.v.).

the latter was actually displaying. On such occasions he merely stood "frozen" in the same nonplussed-looking attitude which he had adopted when Blue displayed to him. Very different was his behaviour when, as sometimes happened, Blue flew and perched beside his mate (on her other side) while *he* was displaying to her. When this happened he reacted by immediately ceasing to display, attacking his mate, and chasing her furiously away. This behaviour, which I have also seen in Blue-breasted Waxbills, would seem to be homologous to the "driving" of doves and pigeons which I have discussed (Goodwin, 1956 and 1960a) in previous articles.

Unringed Male's mate remained faithful to him in spite of temptations but they unwisely deserted the nest they had commenced in a basket and built another in some twigs against the wall of the bird room. This contained at least three eggs on 27th November. Once incubation had begun and building ceased, the inevitable fate of exposed nests in aviaries full of estrildines began to overtake it. Bit by bit it was undermined and de-roofed through other birds, especially Blue, pulling bits of material out of it. Some eggs fell to the ground and were broken. By 10th December there was only one addled egg in the remnants of a nest, which I then removed.

The pair wasted no time in starting to nest again. By 12th December they had started nests in two nest-baskets and eagerly inspected a new one that I put in on that day. On the 18th a minor disaster occurred that may have cost me three young Blue-heads. When cleaning out the room I accidentally knocked against the support of the branches in which the nest-basket they had finally chosen was fixed, causing it to half fall from its supports. I was made aware of what had happened by a sudden outcry of alarm notes from Unringed Male. To effect repairs I had to take the basket down and found there were three eggs inside it. I feared, probably rightly as events turned out, that they might well have been cracked fatally, but I refixed the basket and hoped for the best.

The birds returned to the nest and the hen subsequently laid three more eggs. They continued incubation in spite of the very cold spell that set in about 24th December, which considerably lowered the temperature in the room in spite of the heating arrangements. I tried, however, to compensate in some degree for this by rising early and putting on the light in the room at between 2 and 3 a.m. during this period. When I looked into the nest (with the aid of a torch) on 2nd January no eggs had hatched, but two appeared to be chipping. When I looked at 6 a.m. on the morning of 3rd January two young had hatched. They were already quite dry and gaped for food as I shone the torch on them. Next morning there were still only two young, but a third hatched some time later, as there were three when I looked on the morning of the 5th.

Much to my surprise all went well in spite of the lack of any wild insects owing to the time of year and a temporary lack even of gentles or mealworms on one day, when the young were ten days old, owing to the Post Office "go-slow". On 14th January the young were well covered in quills but the feathers had not yet broken from the sheaths. On the 18th they were well covered in feathers and for the first time, instead of begging for food, they reacted to the torchlight by shrinking back in fear.

On 20th January, after I had put the light on at 4 a.m., I went back to bed but could not get back to sleep. Something was different and at length it penetrated my muzzy early-morning mind that I was hearing the contact call of a Blue-headed Waxbill constantly repeated, a sound I had heard little since all three adults had been put together in the room. Finally I got up at 5.30 a.m. and, wrapping a dressing-gown around me, stumbled to my observation chair and looked through into the room. A young Blue-head was looking out of the entrance of the nest while its parents and several Blue-breasts fussed excitedly about in the immediate vicinity.

The young bird kept looking out of the nest entrance, then dodging back in, very obviously torn between conflicting, or rapidly alternating, desire to come out into the world and fear of leaving the known security of the nest. It uttered the contact call frequently. It also often seized loose ends of grass at the nest entrance and pulled them back into the nest. Once when it did so it pushed the piece of grass up into the side of the nest with the same movement as a building adult; the other times I could not see what, if anything, it did with it.

Nothing happened whilst I was watching, perhaps because the father, Unringed Male, evidently realized either that I or something else was present on the other side of the door, and gave frequent alarm calls. As with my Avadavats and Gold-breasts (Goodwin, 1960b), the Blue-headed Waxbills had never given any sign that they were perturbed by, or even aware of, my presence when I sat "in the outer darkness" watching through the Judas hole, but as soon as they had fledged young the cock did so.

At 7.10 a.m., hearing excited calls from most of the waxbills, I looked again and saw a fledgling Blue-head on the ground. All the birds were very concerned, looking down anxiously, the parents and, rather to my surprise, the Black-capped Waxbills, giving alarm calls.

A few minutes later another fledgling flew from the nest entrance into the branches on the opposite wall. It was at once surrounded by an excited crowd, one of the endearing traits of waxbills being the unhostile interest which a newly-appeared fledgling excites in individuals other than its parents, when first they see it. After a few moments it ceased to be the centre of attraction for the one on the ground came out from its temporary hiding place. Not only its parents

but also the Black-caps and Blue-breasts were obviously "worried" at its situation, looking down and giving alarm calls. The father repeatedly flew down, landed near it for a second, and then flew up into the branches. When at last the fledgling followed him and was safely perched the parents became more at ease and the other species soon lost interest.

One youngster went back into the nest after about half an hour. I then went to work. Next morning three young were out of the nest and I never saw them in it thereafter.

At this period, and for some days after to a lessening extent, Unringed Male showed the usual hypersensitivity to possible or imagined danger that is so characteristic of birds with near-fledging or recently fledged young. However quietly I crept on to my observation chair his loud, scolding "tchek-tchek" would show that I had not deceived him and my entrances into the room to feed and water the birds elicited a frenzy of mobbing. From the way he flew towards me scolding loudly I am sure he would have attacked me had he dared to do so. This had, of course, a distressing effect upon the young, frightening them so that they, as yet unfamiliar with the limits of their world, fluttered against walls or windows, often ending up by falling to the floor. When such disasters happened they naturally confirmed all their father's worst fears as to my essential malignity and roused him to a fresh outburst even if he had begun to cool down a little.

Fortunately, within a day or two, things got very much better. Just as those human children whose parents vainly endeavour to control their behaviour by the constant reiteration of idle threats and empty promises soon cease to consider either seriously so, even though to a lesser extent, did the young Blue-heads soon cease to be quite so upset by their father's "warnings". Their mother, to my surprise, never showed any reaction to my presence behind the door so far as I could see. At first, whenever she fed the fledglings while I was watching, the cock would fly and land by them giving the alarm call, as he would also if one of the fledglings called. At first this would put the hen off and she would stop feeding the young and look about anxiously, but soon she began to take no notice, or at most to pause for a moment, and then continue feeding the young. But the cock bird also wanted to feed the young and soon (starting on the morning of the 22nd) he also fed the young whilst I was watching. He did not feel quite easy about so doing and gave alarm notes as he flew to his young to feed them, even at times halting proceedings to give an angry "tchek" between regurgitations. This no doubt relieved his feelings, but naturally did not enhance his "authority" in the matter of alarm calls.

The young birds started to fly about actively after their parents on

28th January. Before that they had mostly sat about preening and pecking idly at twigs or cuddled up together waiting for their parents to feed them. On the 29th they all ate some grit and one took and swallowed a morsel of food left at the corner of its brother's mouth after they had been fed. I first saw them feeding themselves on 30th January.

Both cock and hen fed all the fledglings and each parent fed each young one every time it fed them. This was not simply a matter of feeding whoever was begging most fervently. If one young one begged more intensely than the other two it was usually fed first, but the parent would lean across in front of, hop around, or even scramble over the backs of two eagerly begging young that it had just fed in order to feed the third one that it had not yet given anything to.

FEEDING AND FOOD PREFERENCES

Panicum millet, maw seed, and canary seed was given *ad lib.* in a tray on the floor. This dry seed was treated with halibut oil (about seven or eight drops to a cupful of seed) about once every five days. Soaked or germinating sprays of millet were also given on most days. Mineralized grit, bird sand, and crushed dried eggshell was given *ad lib.* daily. Natural food could only be collected at week-ends and, owing to the time of year, was limited to turves of freshly growing young grass and an occasional bit of flowering or seeding annual meadow grass (*Poa annua*). Gentles were given *ad lib.* each day. Whiteworms (given by spreading a handful or more of the earth and bulb fibre in which they are cultured, together with the worms, over the newspapers on the floor) and mealworms every two or three days. When the birds had young whiteworms and chopped-up mealworms were given *ad lib.* daily. Crumbled, home-made sponge cake (made with two eggs, a little milk, and a packet of commercial sponge-mix) was given daily mixed with the seed but so far as I have seen only the Black-capped Waxbills ever eat any of it.

The soaked millet sprays I prepare by washing several millet sprays under the tap. They are then placed in a shallow dish of warm water in the heated airing cupboard. After twenty-four hours they are washed again, one or two then fed to the birds (first mopping off the surplus water with a towel), the others returned to the airing cupboard and kept damp (but not immersed in water) and used over the next few days till they are finished.

The Blue-heads fed largely on panicum millet, though also taking the soaked spray millet and a little maw and canary seed. Gentles and mealworms were taken only in very small quantities, prior to the hatching of the young. Indeed, I only saw them eat these insects on a very few occasions until just before the female started to lay, when she began to eat at least a few gentles each day. These were mumbled

through the bill and beaten on the ground in a vain effort to break them up, but finally swallowed with the skin still unbroken. Providing cut-up gentles did not solve this problem since, as I had previously found with other waxbills, the intact gentle is always taken in preference to the mangled corpse owing to its (to the avian eye) more appetizing appearance. Young grass shoots and the green seeds of *Poa annua* were eaten eagerly whenever given and, like all my other waxbills, the Blue-heads took quantities of grit and eggshell, particularly.

On the day before the young hatched, or rather on the morning when the eggs had appeared to be chipping, the hen started (for the first time) to take whiteworms eagerly. The cock did not do so then but the following morning he also was taking them. He also took the insides, or at least parts of the insides, of cut-up mealworms, discarding the skins after mumbling and sucking at them. It was evident that neither whiteworms nor mealworms quite answered his innate promptings in the matter of baby-food for on that first morning he took these foods in a rather reluctant and half-hearted manner and spent much time in frenzied, but vain, search all over the room, obviously for insects he would have found in his native haunts.

From the time the young were about four days old the male was keenest on cut-up mealworms, but the female took mostly gentles which, although they were swallowed with the skins intact after much maltreatment, she apparently managed to feed to the young. After the young were about ten days old whiteworms were practically ignored and the female ate quantities of soaked spray millet which I think she must have fed to the young. While the young were in the nest the parents would often (but not for every feed) take grit or crushed eggshell after eating, but before going to feed the young.

Once the young had fledged it was easier to be certain what was given to the young and from this time at least the parents differed in their food choice. The male would always take first the soft parts of cut-up mealworms, so long as these were available in a fresh state, although later, in default of them, freely giving the young seed and occasionally gentles. The female now fed them entirely on soaked millet spray, ignoring insect food completely so far as I could observe.

BEHAVIOUR AND VOICE

In view of the short time that I have had these birds it will be understood that the observations under this heading are, necessarily, of a provisional nature. They are certainly far from being a complete inventory of the Blue-head's calls and actions. In general this species is very similar to the Blue-breasted Waxbill, and in those aspects of behaviour (such as feeding behaviour, mandibulation, and mutual preening) which are *not* specifically mentioned here it can be taken



Diagrammatic sketches to give an idea of the differences in the stern display of the Blue-headed Waxbill (left) and the Blue-breasted Waxbill (right). Lowest position solid lines, highest position dotted lines. The lines on the actual bodies of the birds merely indicate the distribution of colour and position of wings, bill, etc.

that, so far as I have yet been able to observe, the two species do not differ and readers are, therefore, referred to my paper on the Blue-breast (Goodwin, 1959).

The Stem Display

This is very similar to the homologous displays of most other waxbills and that of the Blue-breast in particular. The male seizes a piece of potential nesting material, preferably a long grass stem, and holds it by its more rigid end (exceptionally by the middle or by its laxer end) in the tip of his bill. Then with his head feathers (or most of them) sleeked and so disposed as to make the "triangular head" common to most displaying estrildines, his flank feathers somewhat fluffed out and his blue tail twisted towards the female, he bounces up and down with an alternate straightening and bending of the legs. His head movements differ slightly from those of the Blue-breast, whose stem display is otherwise identical in form. Whereas the Blue-breast appears to jerk his head *upwards*, with the Blue-headed Waxbill the watcher has the impression of the head being nodded or bowed *forward*. This seems to be due to the Blue-head moving his head further downward and not so far upward during this display. This, and the fact that he usually turns his head rather more towards the female than the displaying male Blue-breast does, being doubtless due to his having a bright blue crown and red culmen as well as blue cheeks, breast, and flanks to exhibit.

During the stem display the male Blue-head usually sings but he may display silently. The position of the tail is a direct consequence of its presentation towards the female. If, as rather rarely occurs, the male displays to a female *directly* in front of him, he holds his tail quite straight while so doing. The stem display may be given without song and it may be given by the female. The same is true, contrary to what I once thought, for the Blue-breasted Waxbill.

Call Notes

Most of the calls of the Blue-headed Waxbill give one the impression of the "same language as the Blue-breast's spoken with a different accent". The difference is about comparable with the *same* English sentences spoken by a B.B.C. announcer and a northern or midland workman.

The contact call is much deeper, throatier, and lower-pitched than the "Tswée-tswée-tswée" or "Weet-weet" of the Blue-breast and might therefore better be written "Tseuu-tseuu-tseuu". It appears to be given in identical situations to that of the Blue-breast (Goodwin, 1959). It is also given by the young after leaving the nest, especially when they start to fly about and follow the parents.

A rather soft, throaty "Tchet-tchet" appears to be the equivalent of the Blue-breast's high sibilant "Tsit-tsit" flight-intention note.

The alarm call is a harsh "Tchek-tchek-tchek". The number of "tcheks" varies with, apparently, the intensity of the bird's feelings, as does the emphasis with which they are given. A number may be uttered "strung-together" in very quick succession but never so as to give a rattling or churring sound as in the homologous call of the Blue-breast. I suspect, however, that if one could take a tape-recording of the Blue-breast's alarm call and play it at a slow speed it would sound much like that of the Blue-head, and vice versa.

I never heard any begging from the young while they were in the nest and for the first day or two after leaving it their begging was very quiet, a faint, sibilant "Tsee-tsee-tsee". Later, however, particularly after they had begun to fly about after parents, they uttered it more loudly. This rapidly repeated, high-pitched yet sibilant begging call was only given in the immediate presence of a parent. When further off the juvenile gives the contact call which changes into the excited begging when the parent comes to it or when it has flown to the parent. The hungrier the young the louder and more rapid are the begging notes.

Song

The song of the Blue-headed Waxbill, at any rate as given by my two males, is quite unlike the song of the Blue-breast. The latter varies to some extent individually, but always sounds cheerful rather than otherwise, and given in a rather hurried tempo except for the final notes which are usually rather more drawn out and have a rising inflection. Two of my attempts to paraphrase Blue-breasts' songs were "Chre-chreu, chre, chre chitty-weeoo!" and "Chreu, chreu, chittyoo, weeoo, wee!".

The Blue-head's song is delivered in a much slower tempo. It is an odd mixture of alternate sweet, plaintive, piping notes and huskily harsh and unpleasing ones. The fluting tone of the sweeter notes and the deep huskiness which pervades the harsh notes of the song suggests very strongly the song of the Bullfinch (*Pyrrhula pyrrhula*). I paraphrased the full song of one male as "Teu, skurr! Tsēē-ēē-wēē-sēē-sēē, skurr, teh-teh"; the opening "teu" very plaintive and sweet, the following "skurr" extremely harsh and throaty, then a jumble of soft notes, then another harsh note and then two long, sweet, notes at the end. There is some individual variation and shortened versions of the usual song are often given. Always it sounds plaintive and disconsolate, the harsh notes merely detracting from its aesthetic appeal without thereby relieving its melancholy.

I have not heard my female sing, but it is probable that the female

has a shorter song which she seldom uses except when widowed. This is the case with the Blue-breasted Waxbill.

The male's song is given (usually) when performing the stem display. Also when he is perched usually at some little distance from his mate. Under many circumstances (and the same is true of the Blue-breasted Waxbill and the Java Sparrow) the song seems given in much the same sort of situation as could elicit the contact call. Indeed, if a bird is separated from its mate or companions it often alternately sings and utters contact calls. In the Blue-breasted, females at once recognize the songs of their own mates and no doubt this is true of the present species also.

CONCLUSION ; AN APPEAL

Since I obtained my Blue-headed Waxbills quite a number of this species have come into this country. In view of their relatively small range and the unsettled state of Africa it is hardly likely that they will ever be imported in large numbers (or desirable that they should be), or even that the supply will continue.

I therefore appeal to aviculturists to do all they can to breed this lovely species and establish it in our aviaries. My own experience shows this can be done without much difficulty or any expensive resources. From my experience I should say this most lovely of all the blue waxbills is quite as easily kept and bred as the Blue-breast, if not indeed more so. No one need be put off trying it for fear it might be as difficult to keep alive as the (Red-cheeked) Cordon Bleu is reputed to be. I cannot, however, speak from experience of the latter since, owing to its notorious reputation for delicacy, I have never attempted to keep it.

Returning to the Blue-headed Waxbill, may I express the hope that any of my readers who have also kept and studied it will make known their own experiences and/or their comments and criticisms of my article through the pages of our MAGAZINE ?

REFERENCES

- DECoux, A., 1931. The breeding of the Blue-headed Waxbill. *Avicult. Mag.*, 4th Ser., 9, 37-9.
 GOODWIN, D., 1956. The significance of some behaviour patterns in pigeons. *Bird Study*, 3, 25-37.
 ——— 1959. Observations on Blue-breasted Waxbills. *Avicult. Mag.*, 65, 6, 149-169.
 ——— 1960a. Some observations on the Diamond Dove. *Avicult. Mag.*, 66, 3, 97-105.
 ——— 1960b. Observations on Avadavats and Golden-breasted Waxbills. *Avicult. Mag.*, 66, 5, 174-199.

THE PARROTS OF AUSTRALIA

2. THE EASTERN ROSELLA

By JOSEPH M. FORSHAW (Canberra, Australia)

(Continued from Vol. 68, No. 3, page 106)

2. THE EASTERN ROSELLA

Platycercus eximius

The Eastern Rosella provides a very good example of loss of appreciation of beauty through familiarity. The beautiful colours in the plumage of this bird are not fully recognized by people in Australia because it is such a common bird in the eastern states. The trade mark of a large Australian canning company, "the Rosella", as *Platycercus eximius* is known to almost everybody, is a frequent visitor to many housewives' kitchens on labels of conserves, sauces and canned fruits. However, to aviculturists in overseas countries and to many foreign tourists to this country, the beauty of this parrot is undoubtedly significant. Regarded merely as "pretty" by most people, the commonest of the *Platycercus* is officially ranked amongst the most beautiful birds in the world—and rightly so. The late Neville Cayley, an Australian ornithologist, justly described it as "one of the most beautiful parrots in existence".

A bright yellow-green is the colour of the rump, under the wings and on the back, which has the characteristic black markings. The abdomen is bright yellow merging into yellow-green towards the vent, which is red. The shoulders, wing primaries and secondary tail feathers exhibit a brilliant blue, while the central tail feathers are a darkish green. Red is the general colour of the head and breast, while the cheek patches or ear-coverts are white. The red on the head gradually replaces the yellow-green of the nape as the bird matures with age. With immature birds the red colouration is patchy and less extensive than in the adults.

In 1792 Shaw and Nodder tabulated *Psittacus eximius* as the "Rosehill Parrot" of the early settlement at Sydney. It was called the "Rosehill Parrot" after the settlement of Rosehill which later became Parramatta. It is difficult to believe that *P.e. eximius* was not noticed by interested parties until four years after the official tabulation of its near relative *P. elegans*. This may mean that the Eastern Rosella was not discovered until the colony expanded westward from the coast thus excluding it from the immediate coastal areas, a fact still evident today. In the early settlement days Rosella pie was considered a delicacy and there are many who still regard it as such. George Caley in his field observations on the Rosehill Parrot passes the remark, "They are very good eating."



Distribution of the Eastern Rosella (*P. eximius*).

Found from the Darling Downs areas of Southern Queensland through coastal New South Wales, Victoria and into the eastern portion of South Australia as far as the Kingston, Robe, and Tintinara areas, and in Tasmania, *P. eximius* enjoys a range nearly as wide as *P. elegans*. The reported sightings of *P. eximius eximius* in the Mt. Lofty Ranges near Adelaide are probably the result of an established group descended from aviary escapees, as the western limit of the range, namely Robe or Kingston, is 90 miles from the Mt. Lofty Ranges. *Platycercus erythropeplus* put forward by Salvadori as inhabiting the Mt. Lofty Ranges is, as stated in the previous article, a hybrid. Two major differences occur between *P. eximius* and *P. elegans* as regards their distribution. The former is very rarely found along the immediate seaboard, a common habitat of the latter, and is found much further inland. Within this distribution range the Eastern Rosella frequents open forest country, timber bordering creeks, rivers and watercourses, farmlands and cultivated fields, and parks and gardens, while rain

forests, wooded glens and timbered mountainous country, which are habitats of the Crimson Rosella, are not frequented by this smaller member of the *Platycercus*. As far as the author can ascertain by observations, 3,500 feet seems to be the altitude limiting *P. eximius* while *P. elegans*, as mentioned in the previous article, is found at altitudes up to 6,000 feet. Within the range three subspecies, including *P. eximius eximius*, have been tabulated and accepted, while one has been dismissed as invalid.

Platycercus eximius eximius, the typical race, inhabits southern New South Wales, Victoria and south-eastern South Australia. It enjoys the widest range of the subspecies.

In 1911 G. M. Mathews tabulated a new subspecies from the northern limits of the bird's range and named it after one of his relatives. *Platycercus eximius ceciliae* of southern Queensland and northern New South Wales is the Golden-mantled Rosella of aviculturists. This subspecies seems to be extending its range both north of the Darling Downs to the Gympie area in Queensland and south along the coastal regions to the Maitland area in the Hunter River Valley of New South Wales. This subspecies is readily separated from the typical *P.e. eximius* by its golden coloured back, blue-green rump, and much richer red breast and head. Many individual birds are slightly larger than the typical race, but this may be an individual variation. The author met this subspecies in 1959 in the Hastings River district of northern New South Wales where it was plentiful at the time. The larger size was definitely evident in the birds observed in this area.

While discussing *P.e. ceciliae*, mention must be made of the hybrid zone existing between *P. eximius* and *P. adscitus* and the significance of this race in relation to the expected consequences arising from the existence of this zone. A significant overlap occurs in southern Queensland where the Pale-headed or Mealy Rosella (*Platycercus adscitus*) meets *P. eximius ceciliae* and in this overlap area hybridization occurs with relative frequency. *P. eximius ceciliae* has the golden back, which in many ways is not unlike that of *P. adscitus*, while the blue-green rump could also be somehow a derivative of descent from a common ancestral form possessing a dominant blue plumage. In 1960 the author successfully bred three *P. eximius eximius* × *P. adscitus palliceps* hybrids and two factors were most significant. All three young (two hens and a cock) had the golden back and blue-green rump. The general colour of the young birds was a light green and the red was reduced to a few small patches on the head, whereas in *P. eximius ceciliae* the red is very rich and extensive. An experiment that could be undertaken by interested aviculturists would be to hybridize *P. adscitus palliceps* and *P. eximius eximius* and proceed to develop from the young along the following lines. Take one of the offspring and mate it back to a typical *P.e. eximius* and mate the offspring again to a typical *P. eximius* and

so on. Take another of the offspring from the original breeding and mate it in the same way with *P. adscitus palliceus*. Extremely thorough notes could be taken of the plumage colouring of all young bred. The experiment, admittedly, could only be carried out with the successful breeding of fertile young from the original mating. The results of such an experiment would be invaluable to studies on these species. The author hopes to undertake this experiment in the future.

In 1911 also A. J. North tabulated the race inhabiting Tasmania as *Platycercus eximius diemenensis*. This race is the best developed of the species and is sought after by aviculturists wishing to exhibit on a show bench. The red which is more brilliant than in *P.e. eximius* covers the whole of the head and extends further down the abdomen while the white ear-coverts are larger. This race is isolated from the mainland and with further generations of development these differences may become greatly accentuated.

Mathews in 1917 separated the birds of Victoria and south-eastern South Australia from the typical race and tabulated them under the new subspecies *Platycercus eximius colei*. Subsequent investigations of his claims have failed to justify this and the subspecies has been dismissed as invalid.

Usually found on the ground, where it spends much of its time in search of food, the Eastern Rosella has similar feeding habits to other members of the genus. While searching on the ground for seeds of grasses and shrubs, which is the main constituent of its diet, the green-coloured back of this bird blends in with the grass coverage extremely well and, unless deliberately searching for them, the observer is unaware of their presence until they take to the air. When flushed the birds fly in their characteristic undulating manner to a nearby tree, returning to the ground as the danger passes. When feeding on gum-tips and berries on the outermost branches of trees and shrubs their white cheek patches on a red breast and head are most conspicuous. Unfortunately this bird has developed a liking for cultivated fruits and many are shot by orchardists. The extent to which this orchard raiding has developed can be judged by the fact that in many parts of its range the "Rosehill Parrot" has been officially listed as a pest. The destruction in cultivated crops, such as wheat and oats, caused by this bird is in many areas quite considerable and quite often stern measures, such as poisoning by treated grain, have to be undertaken.

While feeding on the ground the bird is extremely quiet, but when feeding midst the top branches of a gum tree it often keeps up a constant chatter, which undoubtedly signifies contentment. Other call notes are a tuneful whistle, a single piping note uttered twice in quick succession and a shrill screech given in alarm or when engaged in battle, a not uncommon pastime. The single piping note call is often given when in

flight. All call notes are not unlike those of *P. elegans* but, as stated previously, are of a higher pitch and less resonant quality.

The characteristic undulating flight seems to be brought about by an almost complete folding of the wings during flight. The wings seem to be almost withdrawn into the body causing the bird to fall, then quickly extended again causing it to rise. When undertaking the usual short flights from tree to tree or from the ground the bird usually keeps close to the ground and rises up into the tree with the tail spread for landing. However, when a comparatively long flight is undertaken, a considerable height may be used. The tail is always spread in a fan-like manner when alighting and this has a most pleasant effect.

Once again the most reliable method of sexing the birds is by the difference in the head and bill structure. The cock bird is a slightly larger bird with a stocky build and possesses a squarish head with a broad bill. The hen bird is of a slighter build and smaller size with a smaller, round head and a narrow bill tapering to a finer point on the upper mandible. Juvenile birds possess under the wings two, or more rarely one, white stripes, which are lost by the male bird in his first moult and are usually retained by the hen. The sexes are alike in plumage and a brilliantly coloured hen is not uncommon. Of seventeen nesting pairs examined by the author in central, western and southern New South Wales during the 1960-61 breeding season five hens were adorned in brighter plumage than that of their mates. The common belief that only the cock bird is able to whistle is not true in itself, but is correct in so far as the cock bird uses the tuneful call note much more than does the female.

The mating display is similar to that described in the previous article but with individual pairs, as observed by the author, this display is often carried out on the ground in a manner not unlike that of the ground-dwelling pigeons and doves. Quite often two rival males will begin to display before the one hen but this does not last long, as a fierce battle soon follows to decide which is worthy to continue the attempt to win the "fair maiden's heart". This bitter fighting between males is quite common prior to the nesting season and seems to indicate that the flocking of these birds in the winter months breaks many breeding pairs. If this is true, and to what extent, is the reason for a banding scheme, spread over three years, to be undertaken by the author and other interested parties in southern New South Wales beginning next year.

After mating has been successfully accomplished the hen bird goes to nest. The nest is a hollow limb or hole in the trunk of a tree. The bottom of the hollow is lined with decayed wood on which the eggs are laid. Four to nine eggs, with five the usual number, are laid. The oval-shaped eggs are white and lustrous but usually become nest-stained very quickly. The young, after losing their white down,

assume the same colour plumage as their parents with one small important difference ; there are blue feathers in the white cheek patches.

Ornithologists are of the opinion that the early parent form, from which the two superspecies of the Rosellas have descended, was a green and red bird with blue cheeks. The blue feathers found in the cheek patches of young *P. eximius* is attributed to blue on this part of the plumage in the ancestral form.

The feeding of the young is the duty of the hen only for the first few days after hatching, but when the young are progressing favourably the male is allowed to do his share. The young are fed regurgitated food while in the nest and for a while after leaving their nursery, while being taught to fend for themselves. Each time a parent bird visits the nest the young respond with their characteristic grating call.

Frequently flushed from the ground along country roads and lanes, the Rosella is a familiar part of the bushland scene in the eastern states. It is often observed perched on the fences and posts along our main roads and, unfortunately, many meet their untimely death on our highways.

As the rising sun casts a soft golden haze over the farm homestead and the farmer makes his way down to the milking sheds, he is greeted by feverish activity as the Rosellas greet the new day with their happy tuneful whistles. The farmer pauses for just a moment as he watches a pair of these birds alight on the roof of his shed and make their way along the guttering to drink the water brought by the previous day's rain. Soon this pair are joined by other birds and the onlooker is captivated for a few moments by their quaint mannerisms. After a little petty squabbling they wing their way through the trees out of sight. A Magpie (*Gymnorhina tibicen*) greets the new spring day with its beautiful warbling song and the farmer continues on his way, with the brilliance of the red, green and blue colours on the plumage of the Rosella, a bird he had always taken for granted as part of the country scene, in his thoughts.

Besides being common around homesteads the Eastern Rosella is a frequent visitor to parks and gardens in towns and cities. In Canberra the many berry-laden shrubs and hedges attract flocks of the birds in the summer months.

Platycercis eximius seems to be reasonably sedentary and present work being undertaken by members of the Australian Bird-banding Scheme, under the auspices of the C.S.I.R.O. Wildlife Survey Section, should throw some light on this subject in the near future. The author has observed that even in the coldest climatic regions within this bird's range, namely the Northern Tablelands and the Southern Alps, they remain during the bitter winters. During the winter months the shortage of food forces the birds to raid fodder storage sheds and haystacks in search of grain.

Although a flock species, *Platycercus eximius* does not have a very friendly nature. It is a very pugnacious bird and spends quite a proportion of its time fighting and squabbling with its own or with other species. Two birds may often come toppling from a tree locked in battle and so engrossed in their private war are they that one is able to approach to within a few feet before they are aware of one's presence.

One interesting fact concerning the Eastern and Crimson Rosellas has arisen from the author's observations. The author has found that the young of these sympatric species show a difference in the easiness with which an observer is allowed to approach. Young *P. elegans* allow a much closer approach than do young *P. eximius*. In the previous article the author attributed this difference to the camouflaging plumage of young *P. elegans* but this is open to discussion.

Although great numbers of these birds are shot by orchardists and farmers the species seems to be holding its own. It seems to be one of the few species of parrots able to adapt itself to encroaching human habitation. Before the authorities halted the export of Australian fauna, many of these birds were sent to Europe and Great Britain where *P. eximius* has become a familiar aviary bird.

Extremely popular in this country and overseas as an aviary and cage bird, the Eastern Rosella takes kindly to aviary life. It is an expert showman not hesitating at all to show his colourful plumage in a displaying manner. Always on the move, with a constant whistling and chattering, it brings life to an aviary. Unfortunately it cannot be trusted with other birds as it has a most pugnacious nature and individuals will quickly develop into killers. It breeds freely in captivity and while breeding the male bird becomes very hostile towards other birds and one must remember to remove the young as soon as practicable if the hen shows signs of breeding again. A hollow log or nest-box will serve as a suitable nesting site, but two nests should be made available to each pair so that they can choose to their individual requirements. *P. eximius* is quite a hardy inmate of an aviary and, providing reasonable care is exercised in its management, the birds should survive for a long time. The diet is the same as given in the previous article for the Crimson Rosella, with the plentiful supply of green food most essential, especially if successful breeding is to be carried out. Many hybrids have been successfully reared using this species and other members of the genus. The Pale Headed Rosella $\times$ Eastern Rosella and Crimson Rosella $\times$ Eastern Rosella have been the most common of these hybrids.

A beautiful bird, largely unappreciated through familiarity, *Platycercus eximius* has become widely known both in its native country and overseas. An intrinsic part of the Australian country scene, the Eastern Rosella thoroughly deserves its specific title "*eximius*" which means "excellent".

MEASUREMENTS OF *P. eximius*.

	Wing span	Total body length
	ins.	ins.
Male	18·3	12·75
Female	17·8	12·5
Immature female . .	17·8	11·3

BIBLIOGRAPHY

- BARRETT, C. *An Australian Animal Book*, 1943.
 BARRETT, C. *Parrots of Australasia*, 1949.
 CAIN, A. J. "Revision of Some Parrots", *The Ibis*, Vol. 97.
 CAIN, A. J. *Animal Species and Their Evolution*, 1954.
 CAYLEY, N. W. *What Bird is That?*, 1931.
 CONDON, H. T. "The Australian Broad-tailed Parrots," *Records of South Aust. Mus.*, Vol. 7, pp. 117-144.
 HITCHCOCK, W. B. *Sixth Annual Report of the Australian Bird-banding Scheme*, July, 1959, to June, 1960. C.S.I.R.O. Wildlife Research, Vol. 6, No. 1.
 KEAST, A. "Bird Speciation on the Australian Continent", *Bulletin of the Museum of Comparative Zoology at Harvard*. Vol. 123, No. 8.
 MATHEWS, G. M. *A Working List of Australian Birds*, 1946.
 SETH-SMITH, D. *Parrakeets*, 1902-3.

* * *

SIDELIGHTS ON THE NESTING BEHAVIOUR
OF THE KEY WEST QUAIL DOVE

By Professor CARL NAETHER (Encino, California, U.S.A.)

A little over a year ago, I came into possession of a mated pair of the Key West Quail Dove (*Oreopeleia chrysia*), whose range includes Cuba, the Isle of Pines, the Bahamas as well as many other islands. These beautiful doves are quite rare in captivity, at least in the United States, where they are much sought after by foreign-dove enthusiasts. In their size as well as in their general behaviour they resemble the Common Australian Bronzewing. As to the colour of their plumage, their wings are a light chestnut-brown, the head and the neck are iridescent with green and lavender and the mantle reveals a metallic purple. Below each eye appears a rather prominent whitish band; chin and throat are likewise whitish. The breast is a light, soft vinaceous. When the sun strikes these lovely birds' plumage, its metallic hues turn truly brilliant. The hen of this species is somewhat smaller than the cock, and in general her plumage is duller and paler.

For a full year these gentle, fully-mature doves, which occupy a spacious, thoroughly well-protected aviary, gave no signs whatever of wanting to nest. It was not until March of this year (1962) that I saw the cock "driving" his mate by suddenly dashing at her vehemently whenever she came anywhere near him. He did not, however, in any

way follow her or actually drive her to the nest, as is the habit of some other species of foreign doves and of *all* domestic pigeons.

For their breeding site the Key West Quail Doves chose a large open-top box, about 4 feet off the ground, in which the flimsy, loose nest, made of sticks and dried leaves, occupied only half the available space. Both male and female were on and off the nest beginning with 11th March and until 23rd March, at which time I discovered that it contained two eggs. Being tame, these doves showed no fear at my approach to the nest, which I examined quickly while both birds were away from it. Not having kept Key West Quail Doves before, I was keenly curious about their breeding behaviour ; hence I kept notes on those days on which I was at home, their aviary being clearly visible from my study.

Shortly after 9 o'clock on the morning of 26th March, I saw the male flying into the nest-box, obviously to take over incubation duties from the hen. There he would very gradually sidle up to her, sit very close by her side for at least ten minutes, then very slowly push her sufficiently off the nest to enable him to "get hold" of one egg, which he somehow managed to roll under his belly. Now seemingly satisfied with his "conquest", he sat still. Thus both, male and female, sitting side by side, each on one egg, remained on the nest for fully half an hour, the while cooing softly. Finally, the hen left the nest and "her" egg.

Two days later, on 28th March, the hen seemed to stand in the nest : certainly she was not sitting on the eggs. Sensing that something was wrong, I glanced into the nest-box where I found one egg lying *beside* the nest, no doubt rolled out by the male during "the changing of the guards". As I tried to place this egg gently under the male, who was then sitting, he flew off the nest and onto the floor of the pen. The moment his mate espied him, she flew into the nest to brood the eggs.

On a cloudy 29th March, I found male and female sitting side by side in the nest at eight in the morning. Again the male had managed to take one egg away from the hen, so that each bird was brooding one. Again I put the misplaced egg into the nest proper.

On 30th March, both doves were on the nest at 8.20 in the morning, the male just beginning to shift one egg to one side and under his belly. This time the hen left the nest and "her" egg fairly promptly, dropped to the floor of the pen where she began to pick up twigs and leaves which she carried to the nest. There she dropped them on the uncovered egg which, soon wholly submerged, began to cool off. Meanwhile, her mate kept on brooding "his" egg.

At this point I should like to interject some comments on a phase of behaviour which seems to be peculiar to this species : both male and female, when *sighting each other* on or off the nest, are constantly

twitching or vibrating the tips of their flights. They have "indulged" in this behaviour ever since they showed signs of wanting to nest, i.e., since early March of this year. Apparently this twitching of the flight-tips is a means of communication, the pair resorting to it only when in sight of each other, either on the ground or in the nest. A similar habit I have observed in domestic pigeons: at mating time and prior to egg-laying, the male, sitting in the nest-box and calling for his mate, will flutter or twitch his wing-tips rapidly. But he will not do so when off the nest. Moreover, the female domestic pigeon seems not to engage in this habit at any time.

On 31st March, I found both eggs covered with nesting materials, which the hen had assiduously carried to the nest daily. There being no visible eggs to incubate, the doves deserted their nest.

On the morning of 1st April, male and female were back in the nest, side by side. In the late forenoon, the hen began again to gather sticks for the nest.

On 2nd April, both doves were off the nest, which contained no eggs.

On 4th April, they again occupied the old nest, which contained one egg.

On 5th April, a hot day, the hen was *standing* over two eggs.

From this time on the behaviour, detailed above, was repeated in that the male again pushed his mate out of her position in the nest sufficiently to enable him to roll one egg under his belly; then both birds began to incubate side by side for an hour or more before the hen decided to leave the nest. Now she began to get busy immediately carrying more and more sticks and leaves to the nest, dropping some by the side of her brooding mate, some on top of him, and some on the uncovered egg. Within a few days the nest was so filled with sticks and the like as once more to cover both eggs, which, incidentally, proved to be fertile. Not "finding" their eggs among the mass of sticks and twigs, the doves again deserted the nest. During all this nesting, they were in almost constant communication with each other: sometimes by means of cooing, but at all times by means of twitching the wing-tips. This second nesting lasted until 21st April.

During the latter part of May, these doves occupied a different nest-box. It was just large enough to accommodate *one* sitting bird. In other words, the male cannot sit by the side of his mate when he tries to relieve her of brooding duties—cannot take an egg away from her. And this time there has thus far been no standing over the eggs, but rather a close sitting on them. Moreover, no new material is being added to the nest by the hen, as was the case in prior nestings. Incidentally, I doubt whether in the wild state a female Key West Quail Dove would yield to the habit of carrying new material to her nest daily, and long after she has laid eggs: for, ordinarily she would need

the time off the nest to gather food, which activity—the food not being as plentiful and as easily obtainable as in captivity—would tend to keep her well occupied during her absence from the nest. On some occasions, I have observed domestic hen-pigeons continuing to build nest *after* they had laid, some of their nests reaching a height of from 6 to 10 inches, at which point or points they would usually topple over and of course bury the eggs.

In due course, I hope to report further on the behaviour of this pair of Key West Quail Doves, whose actions intrigue me no end. Even though my long-time hobby of keeping some of the rarer species of foreign doves and pigeons may not yield many breeding successes, it cannot help but afford me plentiful opportunity for gathering provocative and even exciting data relating to their behaviour—an opportunity which I value highly and enjoy greatly.

* * *

NOTES ON THE DISPLAY AND BEHAVIOUR OF PETER'S TWINSPOT AND THE BROWN TWINSPOT

By C. J. O. HARRISON (Perivale, Middlesex, England) and
B. P. DORMER (Luanshya, N. Rhodesia)

(This account has been prepared from correspondence which I had with Mr. Dormer regarding the display of Peter's Twinspot, which he had witnessed in his aviary. In the following notes the descriptions are his and the comparative comments are mine. C.J.O.H.)

Both these species of African Waxbills are birds of the bush and forest edge and little has been recorded of their habits. Peter's Twinspot, *Hypargos niveoguttatus*, is the more brightly coloured of the two. The cock is grey on the crown and nape, and brown on the wings and back, with a red rump and red-and-black tail. The sides of the head, throat, and upper breast, are deep red and the rest of the underside is black, with numerous bold white spots on the flank. The hen is more dull in colour, the sides of the head being grey, the throat buff, the breast paler red, and the under side grey where the cock is black. The Brown Twinspot, *Clytospiza monteiri*, is more soberly coloured, being grey on the head and dark brown on the back. The rump is red and the tail blackish-brown; the breast, flanks and belly are chestnut coloured and heavily marked with white spots which change to white barring on the belly and under tail-coverts. There is a red stripe on the throat of the cock. The hen is rather similar in colour but possesses a buffish-white throat stripe.

BEHAVIOUR OF PETER'S TWINSPOUT

The normal contact call of the species is a rather high-pitched "twee" uttered usually at about five second intervals. The alarm note is a single sharp "chip", usually heard as the bird dives into the thick undergrowth of its normal habitat. The song does not consist of a continuous phrase, but of random notes resembling various call-notes. The straw display is performed on the ground, the cock bird dancing round the hen with a feather in his bill, his tail fanned out and bent slightly to one side, and uttering a faint and not very musical song sequence. He performs a bobbing movement, the head being alternately pointed upwards at an angle of about 70° and bowed to about 30° every second during the display. He starts with his head in the elevated position, body crouched close to the ground. He next lowers the head; then throws his head up and at the same time hops about half-an-inch off the ground. His head is then slowly lowered until it is slightly bowed and the motion is repeated. One gains the impression that he has to wait before his next hop in the air for his slowly descending head to catch up. He does not hop until his head is in the lowest position, so that he can throw it up again simultaneously with the next hop. One is always struck by the grace and delicacy of the display. Meanwhile the hen remains motionless and slightly crouched, until she invites mating by rapidly quivering her tail in the typical estrildine manner.

In the wilds this species appears to indulge in a form of communal display in which, towards evening, a number of pairs congregate in a patch of thick undergrowth. Here the cocks hop around from twig to twig, maintaining distance of about five or ten yards apart, and display as though to one another, meanwhile uttering a sharp "chip" followed by a long descending musical trill starting high but ending at a low pitch. The hens appear to play no part but simply sit and watch. The display may last for up to half-an-hour.

In the aviary the nest is built on the ground, under a pile of brush. First of all a shallow saucer-shaped depression about 2 inches in diameter is scraped out on the site of the proposed nest. A normal domed nest is then built in this depression. Small rootlets are the favourite material, and no grass longer than 3 inches has been used. The nest is lined with feathers. Although the clutch is usually described as three eggs, all the clutches laid in the aviary have numbered from four to six eggs, four being the most common number. Incubation takes sixteen days. When either bird relieves the other for incubation duties it always seems to bring an additional bit of grass or rootlet, or perhaps a feather, to add to the nest. The chicks are black, with a few tufts of greyish down, and have bright chrome-yellow gapes.

BEHAVIOUR OF THE BROWN TWINSPOT

The display is in all respects identical to that of Peter's Twinspot, except that the movements of the cock bird are far more jerky and less graceful. The voice has little to commend it and is very reminiscent of the crackling of the Bishop Birds (*Euplectes* spp.). A pair nested in an aviary in a box 3 feet off the ground. Four eggs were laid and both sexes shared in the incubation, but the nest was usurped by a spinster Peter's Twinspot and nothing came of it.

DISCUSSION

It is interesting to compare these displays with the similar straw displays of the better-known waxbill species. The typical waxbills of the genus *Estrilda*, the Red-eared Waxbill and its relatives, have a bobbing display on a perch with a piece of grass or a feather held in the bill, which is pointed upwards. This is accompanied by the short song of the species. The Fire-finches of the genus *Lagonosticta* have a similar display. Except in the possible case of *L. rufopicta*, the Bar-breasted Fire-finch, this is not accompanied by song but by a special display note which appears to be synchronised, in some species at least, with a slight lifting of the bill. The Senegal Fire-finch, *L. senegala*, terminates each series of bobbing movements by a bow forwards and across in front of the hen.

The Blue Waxbills of the genus *Uraeginthus* (including *Granatina*) have the typical upward-bobbing display movement with grass or a feather held in the bill, accompanied by the song-phrase. Derek Goodwin (pers. comm.) noticed that when the Blue-breasted Waxbill, *U. angolensis* displayed there was a slight throwing-up of the head at each upward jerk of the body. In the case of the Blue-headed Waxbill, *U. cyanocephalus* this upward movement of the head was of wider amplitude, the head descending lower between the jerks in an apparent nodding movement, and then being noticeably raised coincident with the upward jerk of the body. He considered that the presence of the blue colouration of the whole head in this species was linked with this lowering of the head during display.

We have here evidence of an increasing upward movement of the head coincident with the upward bob of the body. This bobbing is caused by a sudden straightening of the flexed legs resulting in an abrupt upward movement ; so abrupt that the bird's feet momentarily leave the perch. In the case of the Twinspots we would appear to have a further exaggeration of this movement, the head being thrown up coincident with each upward bob, and deeply lowered between each movement. The jerky bobbing becomes a series of spaced upward jerks of sufficient force to appear as small hops, this being more apparent since the display occurs on the ground whereas, in the other species

mentioned, display occurs on a perch. As in the case of the Blue-headed Waxbill areas of bright colour on the plumage emphasize the movement. Both species are cryptically coloured on the upper surface and brightly coloured beneath ; and the sudden upward movement of the head would repeatedly give a sudden revelation of bright colouring to the watching hen. Both cocks have bright red on the throat.

It would be of interest to know just how the display of the Green Twinspot, *Mandingoa nitidula*, compares with these. This species is green in colour with the lower breast, fore-belly and flanks black, boldly spotted with white. The cock has bright red on the sides of the head extending from the base of the bill to around the eyes, and in some races, Schlegel's Twinspot for example, the throat and chest are orange-red. Here again there is the bright colouration about the head and throat of the cock.

Two aviculturists have written of the behaviour of this species. Both accounts are in German and give rather scanty detail. Burkard (1960) refers to a straw display with a long stem held in the bill, which the bird "whips vigorously up and down, during which the upthrusting movement of the head is directed straight up, as though it wished to throw the stem over its shoulder ; so that at the uppermost point of the movement the body has a more upright stand than at the lowest point of the movement." Burkard records that a hen Peter's Twinspot showed interest in this display. Karl (1961) records that the hen Green Twinspot would fly to a displaying cock and then fly down to the nest, the cock dropping the stem and following her. Both would disappear into the nest where the cock would sing again and hop up and down, the movement of the nest being visible from outside. He suggests that copulation would probably occur in the nest. He also records a hen, in such circumstances, flying not into the nest but to a corner of the aviary where she solicited copulation. Subsequently the cock built a nest at this spot. According to Karl the cock builds the nest, the hen only adding a little of the lining. Burkard states that the hen incubates most of the time but that the cock takes over when she leaves the nest to feed. When not incubating a cock, at this period, was observed to sit with another pair of Green Twinspots that shared the same aviary.

The display described suggests a performance similar to that of the other Twinspots, with an upward thrust of the body accompanied by an upward movement of the head, but seems to imply that it takes place in a more upright posture, the final position suggesting that of the more upright type of waxbill straw display. It would be useful if one of the the aviculturists possessing birds of this species could let us have a more detailed description of this display.

Burkard records that with two pairs of Green Twinspots in one aviary there was no evidence of animosity during the period when

display and nest-building were taking place. This raises the interesting question of the degree of sociability which these species show. The apparent communal display of Peter's Twinspot seems to have no parallel in the behaviour described for other estrildines, and its precise function in relation to the breeding season is uncertain. In reasonably sociable or tolerant species of waxbill, display by a cock is more likely to elicit interference by another, and there appears to be no evidence of display by one individual stimulating similar behaviour in another.

These three Twinspot species have been regarded as representatives of separate genera by most authorities, although Delacour (1943) regarded Peter's and the Brown Twinspots as closely related. All three show some similarity of plumage and structure, and the main difference appears to lie in the wing-formula. From the evidence here they would appear to show similarities of display which might suggest that they are more closely related to one another than to the other waxbill genera mentioned. This display of the Green Twinspot seems to be closest to that of the Blue-headed Waxbill.

REFERENCES

- BURKARD, R. (1960) Der Grune Tropfenstrild. *Gefied. Welt.* 205-6.
 KARL, F. (1961). Die Erstzucht des Grunen Tropfenstrild. *Gefied. Welt.* 1-3.
 DELACOUR, J. (1943) A revision of the subfamily Estrildinae of the Ploceidae. *Zoologica, N. Y.*, 28, 69-81.

* * *

BREEDING BEHAVIOUR OF THE CHINESE PAINTED QUAIL PRIOR TO THE CHICK STAGE

By IAN D. WOODWARD (Hemel Hempstead, Hertfordshire)

I think it would be fairly safe to say that no other gallinule has been so extensively chronicled as the diminutive Chinese Painted Quail *Excalfactoria chinensis* nom., although, no doubt, the beautiful Golden Pheasant *Chrysolophus pictus* would not be far behind. I therefore do not propose to go over old ground again but only to offer one or two observations which might prove of interest to other aviculturists. The following notes are only concerned with a small part of the breeding biology of the species, namely that prior to the appearance of the young.

PRE-MATING DISPLAY AND BEHAVIOUR

Personal records seem to suggest that this becomes most apparent about one week prior to the laying of the first egg. It would also seem that the hen actually lets her mate know when *she* is ready to breed ; or, at least, that is my interpretation of the following behaviour of the hen bird towards the cock. Although this behaviour has been witnessed on a number of occasions, for the purpose of this description I will quote one particular incident from my notebook.

This behaviour involved the hen *continually* chasing and pursuing the cock bird around the flight. "Continually" is stressed because for one whole day's observation on this pair of birds I found that the hen never once gave up the chase; I did not notice either bird even feed, except early in the morning. Whenever the hen caught up with the cock, she would aim persistent jabs of her mandibles at his flight feathers, sometimes gripping his wing to such an extent that he would be halted and buffeted back towards the hen with astonishing force and speed.

For the next few days the time-period of this behaviour decreases to only sporadic jabs at the male, but at the same time the hen seems to assume a different posture and attack. Whereas previously she would make ceaseless and sometimes inaccurate moves towards the cock, her motion now begins to take on a more "smooth" approach. By this I mean that she extends her neck and bill parallel to and about half an inch from, the ground, and in this mode chases the cock in an apparent "weightless" gait; the action is so smooth that it appears she is floating through the air, and is quite unlike the behaviour of the cock which is described below. Many times, when she is in this "mood", she will occasionally remain motionless in the neck-extended position when the cock approaches too near, and only if the cock gets too "brave" will she make the attack.

A day or two after the assumption of the hen's new postures, the cock starts to come into its own gallant self, and *he* starts to pursue the hen. His behaviour, however, is somewhat more elaborate than his frustrated mate's. Almost simultaneously he will puff out the feathers on the body and lower his axis so that the head almost touches the ground and his rear part is raised—very similar to the behaviour assumed when a hornet *Vespa crabro* was placed before a particular cock (see Woodward, 1961), or when a strange hen has been introduced into the same enclosure as the male. In this posture he pursues his mate, but immediately he starts to run he droops the wings away from the body and drags them along the ground. I only once ever saw the hen do the latter. Coition always follows.

During this behaviour the hen can mostly be heard emitting a chicken-like "chip-chip, chip-chip", whilst the cock bird's call can generally be likened to a repeated "chuck-chuck-chuck, chuck-chuck-chuck". My observations have shown that the above-mentioned displays by both birds hardly ever occurs after the appearance of the first or second egg.

LAYING OF EGG

On one occasion I had the good fortune actually to witness the process of the hen preparing to, and laying, an egg. The hen walked over to the nest and settled on the eggs, accompanied by the cock

who stood close by. A minute or two later she adopted a hunched posture, with neck pulled close to the body. A few seconds later she lifted herself from the eggs and positioned her body to the *side* of the nest, tail facing inwards, and straddled her legs something like $1\frac{1}{2}$ inches apart; in this position her body was about parallel to the ground. She now took on a hunched appearance again and at the same time fluffed out the feathers, and I particularly noticed that the portion at the throat-belly was considerably puffed out or inflated. In this position she appeared to experience strain: in fact, to the extent that she closed both eyes completely. At this time the cock bird, close by, was continually "clucking" in the well-known manner, as though he was aware of his partner's difficulties.

When the egg eventually appeared, the drop between the vent and the ground was about 1 inch. The very height of this drop and the fairly fast speed at which the egg was ejected, may be the explanation of the bird laying the egg at the side of the nest. The hen remained in the pre-laying posture for about 5 seconds after the egg appeared, after which she assumed her natural appearance (bringing the feathers back to the body) and then gave a quick inspection of the egg before leaving the nest and joining the male bird, now at the other end of the flight.

Immediate examination of the very warm, clammy egg revealed that it was fairly smooth in texture, coloured a polished grey-green; quite unlike the other seven eggs, which were a very dark khaki shade. However, within a few hours this, too, turned into the identical colour of the other eggs. This colour-changing tendency would seem to be rather contrary to the development that occurs with some eggs when subjected to light. For example, when the pale, glossy blue eggs of the Starling *Sturnus vulgaris* or Pied Flycatcher *Muscicapa hypoleuca* are subjected to direct light they very soon take on a creamy colour.

REFERENCE

- WOODWARD, IAN D. 1961. Reactions of nesting Chinese Painted Quail *Excalfactoria chinensis* and of *Euplectes* Weavers to certain Hymenoptera (Aculeata). *Ibis*, 103a, 472.

* * *

BREEDING EAGLE-OWLS AT CHESTER ZOO

By A. W. E. FLETCHER

The Owl aviaries at Chester house six species of owl—Snowy, Tawny, Barn, Long-eared, Great Eagle-Owl (*Bubo bubo*) and Spotted Eagle-Owl (*Bubo africanus*). There are four aviaries consisting of flights 20 feet long by 10 feet wide, with open-fronted shelters at the back 6 feet deep.

Both pairs of Eagle-Owls have an aviary to themselves, and when early in March this year it became clear from the courtship displays and from seeing both hen birds making nesting scrapes on the ground in the corner of the shelter, that breeding attempts were being made, slight alterations were made in the aviaries to try to provide some cover. In the case of the Great Eagle-Owls, a low dry stone wall 2 feet high was constructed across half the width of the shelter immediately opposite the corner where the nest scrape had been made. Within twenty-four hours a second scrape was made in the unprotected corner and the first egg laid.

In the case of the Spotted Eagle-Owl, the screen was made of fir branches, and in this case the hen appeared grateful for the cover, and was out of sight of anyone outside the aviary during incubation and early rearing. Her neighbour was in full view of the public during the whole process, and appeared quite unconcerned.

Both birds laid clutches of four eggs each and I see from my diary that the first Great Eagle-Owl egg was laid on 18th March, and the first Spotted on 28th March. Both birds started incubating as soon as the first egg was laid, and were each seen off their nest once only during incubation when the number of eggs in each clutch was noted.

Incubation period in each case was about thirty days, though it is impossible to be certain since both hens sat very closely. We ascertained a day or two after the thirty day period that *Bubo bubo* had at least one chick and a fortnight later that the *africanus* had also hatched. It is thought that in both cases the youngest owlet hatched about a week after the oldest, but it was not for nearly a fortnight that we discovered that it was four out of four in both cases.

At today's date, 4th June, the oldest Eagle-Owl is nearly as big as its parents and feathering well. It is amusing to see the difference in sizes in the family. The youngest chick is half the size of the oldest, and still in the down.

The four little Spotted made their first public debut from behind their screen of fir two days ago. Though ten days younger than the Great Eagle-Owls they are about as far advanced though much smaller, proving what has been already reported in the MAGAZINE that the tropical *africanus* matures very much more quickly.

Owls here are fed on chopped horse meat and either pigeons, rats

or chicks on alternate days, the latter to provide fur and feather roughage without which their digestion goes wrong. One day a week they are starved, again as an aid to digestion, but in the case of the two breeding pairs this rule was amended, and some food given every day. It was felt that a day without food might cause the sitting birds to desert.

Both pairs were quiet and unaggressive during incubation, but both cock and hen *Bubo bubo* became extremely dangerous as soon as the first owlet was hatched, so that it has been impossible to enter their aviary. The Spotted have been fairly unaggressive, though the female sometimes attacks the keeper's gumboots !

Providing sufficient pigeons, rats and poultry to feed eight owlets has been quite a headache and we are most grateful to members of our Council and staff who have helped. It has been most rewarding to achieve that rare avicultural success, a "hundredpercenter", and the keepers most concerned, Messrs. Bennel and Ford, are to be warmly congratulated.

* * *

LONDON ZOO NOTES

By J. J. YEALLAND

Two Red-billed Francolins (*Francolinus adspersus*), a species new to the collection, were recently received. They were in a collection brought by Mr. J. J. C. Mallinson to the Jersey Zoological Park.

This Francolin inhabits parts of south-western Africa and the area from Lake Ngami to western Transvaal, the more easterly birds being described by de Schauensee (1931) as a sub-species (*F. a. kalahari*), a claim that appears not to be generally accepted.

Other arrivals of especial interest are a Lammergeyer, a pair of Green Pheasants (*Phasianus versicolor*), a pair of Scintillating Copper Pheasants and two Rufous-breasted Accentors (*Prunella strophiata*).

Birds bred in the Gardens include three Ashy-headed Geese, one Princess of Wales' Parrakeet, one Great Eagle-Owl, one Kenya Eagle-Owl and a Spotted Eagle-Owl. The Kenya Eagle-Owl is, of course, *Bubo capensis mackinderi* : the southern race, *B. c. capensis*, was bred here in 1905, four young being reared.

The Great Eagle-Owls nested again when the chick of the first nest was about half-grown and this time their eggs and those of Snowy Owls were transposed for the reason that the latter have only ever reared a single young one, but the manoeuvre was a failure. Little Owls, Spectacled Owls and Abyssinian Eagle-Owls nested, but the eggs were infertile as were those of Greenland White-fronted Geese. A Great Bustard laid several eggs and a King Penguin's egg is at present being incubated. The Sarus Cranes, that have bred during

the past two summers are incubating two eggs, nesting some six weeks earlier than last year, possibly because the previous season's young one was removed earlier.

A Large Pied Wagtail (*Motacilla maderaspatensis*) received in December, 1950 has died. This bird built and laid a clutch of eggs each summer for several years and we once tried a male Pied Wagtail with her, but she would have nothing to do with him. This Wagtail is sometimes considered to be conspecific with *M. alba*, but Vaurie (*The Birds of the Palearctic Fauna*) gives it as a separate species, for, as he says, it differs "structurally as well as through its plumage sequence, and is furthermore sympatric with the races (*alboides* and *personata*) of *M. alba* in the North West Frontier Province and the northwestern Himalayas, showing no signs of interbreeding".

* * *

NEWS AND VIEWS

Dr. Kenneth C. Parkes, of the Carnegie Museum, Pittsburgh, has been elected a Fellow of the American Ornithologists' Union.

* * *

Claude Payne reports that he has a young Knysna Touraco in the nest, twelve days old and about the size of a Song Thrush.

* * *

Frank Scott has been elected President of the Avicultural Society of South Australia, in succession of C. C. Burfield, President since 1955.

* * *

The Bronze Medal of the Avicultural Society of South Australia has been awarded to Dr. Alan Lendon, for the first breeding of the Golden-shouldered Parrakeet *Psephotus chrysopterygius*.

* * *

Following the death of the Kakapos taken into captivity (see AVICULTURAL MAGAZINE, 1962, p. 41) the Minister of the Interior has announced that no more Kakapos will be captured, at least not until a clearer picture of their habits and food in the wild has been obtained.

* * *

A breeding success with great possibilities for the future has just taken place at the Chester Zoo. A blue Masked Lovebird male mated to a Fischer's hen has fathered a single young one which has just left the nest-box. It is described by A. W. E. Fletcher, Curator of Birds, as "much like a Fischer's but has a well defined darkish mask".

* * *

When the "Darenth-Hulme" collection was dispersed the Red-faced Lovebird colony was acquired by Walter Duncan of Dumfries.

Last October a pair nested and the female was not observed to leave the burrow for six weeks. By Christmas she had obviously deserted and examination of the nest revealed no trace of egg-shells or young ; only feathers, dried grass and shelled seeds were in the chamber.

W. E. Stevens, Chatham, has had rather more success in his small colony. There have been several infertile eggs and one young one which was thrown out of the nest when about two weeks old.

* * *

Proof of what can be done in the way of breeding, if one has sufficient enthusiasm and perseverance, under what might be described as unfavourable conditions, is forthcoming from Herbert R. Anderson who writes : " I may tell you that I dwell in an apartment in the heart of Chicago, with bird keeping divided between a living room flight-cage and breeding-cages in the bedroom. Under these conditions I managed this past winter, with the fine help of some Bengalese, to raise twelve young Gouldians, now moulting to adult plumage, four Stars, nearing full colour, and ten Masked Grassfinches.

* * *

An event of great importance at the Edinburgh Zoo last year was the arrival of a Kiwi *Apteryx australis mantelli*, a gift from the Zoological Gardens of Wellington City Council, New Zealand.

This bird is a female hatched and reared in the Wellington Zoo and is thus known to be three years old. Shortly before leaving New Zealand it was mated with a male bird. There is therefore a possibility of " Wiki " laying not only an egg but a fertile one (it did this in Wellington last year). If any such egg could be successfully incubated the chick would assuredly be the first hatched outside New Zealand !

* * *

About 125 members and guests accepted the Sixth Annual Invitation of the Chairman and Council of the North of England Zoological Society to lunch at the Zoological Gardens, Chester, on 20th June, 1962.

The Chairman of the Society Mr. G. B. Groundsell welcomed the visitors and presided at the lunch. Mr. K. A. Norris thanked the Chairman and Council on behalf of our members.

The warmest thanks of our members are due to Mr. and Mrs. G. S. Mottershead and their staff for making this event so very enjoyable.

The sun came out in the afternoon and there were four or five hours of lovely weather. Disappointingly the roses were not in flower, due to the late season they were at least a week behind. Much admired were the new Elephant House, the inside of which is really marvellous, and the herd of four Eland.

* * *

Dr. Brian Kendall writes concerning his cockatoos : " I would like to record a couple of items of avicultural interest. Last year (1961)

Galaha were double-brooded, rearing six in two broods of three. Obviously they had to get off to an early start and, in fact, I heard young on 22nd April. The first three were removed from the parents on 14th and 16th July; two eggs of the second clutch were then in the nest. Three young of the second brood were taken from the nest on 20th September and an attempt was made to hand-rear them, but they were too advanced and had to be returned. They were still being fed by the parents on 11th October. This year I have young Galaha at the "quilly" stage and a single (I think) young Citron-crest. The hen (mother of this bird) was seen by me a few days ago with a sparrow which she had presumably caught and killed in the aviary and, if not actually eating it, was taking it to pieces. I dare not go too near to watch as she threatened to take it into the nesting-barrel which didn't seem to me to be a good idea. I have for several years fed cockatoos in rather unorthodox fashion—plenty of soft food, including table scraps and bits of meat occasionally. Perhaps this is the correct procedure."

* * *

Events amongst the Penguins at the Edinburgh Zoo are always of interest. This Zoo has, of course, specialized in the keeping and breeding of Penguins for many years and, very important, it invariably publishes the season's results and observations in the *Annual Report*. Last year promised to be almost a record, but the final results proved disappointing. Only three King chicks were hatched from thirteen eggs, the most likely cause of the poor fertility being lack of vitamins due to the unavoidable feeding of gutted instead of ungutted fish during the months the birds were building up for the mating season. A secondary cause may have been the introduction of new birds. Thirteen Gentoo Penguin chicks were hatched from twenty-two eggs, but only five were reared. "The main reduction in numbers was due to the natural breeding habit of this species which rears only one chick from the two eggs hatched; the first chick, two days older than the second, confiscating all the food regurgitated by the parents, the second chick surviving only if an accident carries off the first. This summer it is hoped to decrease the death rate among the younger chicks by removing the first egg from a nest immediately it is laid and replacing it with an infertile egg; then when the second egg has been laid the infertile one will be taken away and the first egg replaced in the nest. In this way the incubation of both eggs will begin at the same time instead of one being two days in advance of the other, and, as a result, the chicks should hatch together, equally strong and equally able to take food from the parents."

In the colony of Maccaroni Penguins one chick was hatched but died as the result of an accident.

A. A. P.

REVIEW

ANIMAL DISPERSION IN RELATION TO SOCIAL BEHAVIOUR. By V. C. WYNNE-EDWARDS. Oliver and Boyd, Edinburgh and London, 1962. Price 55s.

This important treatise deals with the methods by which the numbers and population-densities of animals are controlled and develops a new theory of animal dispersion. Whilst factual evidence has been drawn from all groups of the animal kingdom, birds with their highly developed social behaviour provide much of the material and a sketch of the theory was published in the *Ibis*, 1959, v. 101.

The placement of individuals and groups of individuals within the habitats they occupy and the processes involved are generally taken for granted and it has remained a largely unappreciated problem. There is obviously a close adjustment between animals and their essential resources but the dispersion involved is dependent on very complex responses, especially in comparatively young and lowly animals with varying larval stages. A more simple example of quantitative dispersion is illustrated by the population density of pelagic birds in the North Atlantic which is shown to be correlated with the abundance of plankton. In all animals there seems to be an optimum density in relation to resources and evidence is presented to support the view that this favourable balance is maintained by the self-limitation of animal numbers.

The necessary regulation of the population increase is accomplished in many different ways such as varying the quota of breeders, the number of eggs, the resorption of embryos, survival rate of the young, and so on; accelerating or retarding growth-rate and maturity; limiting the density of colonization or settlement of the habitat; ejecting surplus members, and even encompassing deaths to retrieve the correct balance between population-density and resources. At all costs population-density must be prevented from rising to the level where food shortage begins to take a toll on the numbers.

The author provides a wealth of examples of the way this optimum density is brought about. Most birds have visual recognition signals, many of which only appear when the bird moves or flies, or deliberately exposes them. Sound signals are also widely used by birds for intra-specific communication, involving the establishment of territory, and in courtship. The chapters on communal nuptial displays and on display characters and natural selection contain a wealth of examples provided by birds, including leks in which there is a display of males primarily directed towards one another, to decide and maintain the social status of each. Juvenile mortality and the deferment of maturity are two methods of limiting the numbers of species and in birds, especially, breeding success on the whole is generally lower in young

adults than in older ones, and the admission of recruits to the breeding caste is dependent both on social standing and economic conditions.

The book concludes with an interesting discussion on longevity and it is noted that long life tends to be associated with permanent, extensive, and stable environments. In the space available it has only been possible to refer to a few of the many problems discussed by the author. The origin and behaviour of social behaviour for instance are seen in a completely new light and the close similarity between man's social conduct and that of his fellow animals, results in new light being thrown on the background of human conventional behaviour.

This book is well produced and contains a number of illustrations including a photograph of the trunk of a yellow pine in California estimated to contain 50,000 storage holes for acorns made by the Acorn Woodpecker. An amusing printer's error occurs on p. 192, "arthropods" being misspelled "anthropods".

E. H.

CORRIGENDUM

In the leading article in the May-June number, 1962, Vol. 68, No. 3, on "The Ceylon Lorikeet" the third line should read "In spite of their appellation of 'Lorikeet' they are *not* members of the brush-tongued section of the Psittaci". Apologies to the author for this error.

* * *

CORRESPONDENCE

IS GROUNDSEL AN UNDESIRABLE ITEM OF BIRDS' DIET?

We have heard so much recently about the various effects to be derived from feeding groundsel to our birds as a source of greenfood. Some quarters hold the plant highly sacred and look upon it as a valuable part of their birds' diet. But there are others (and I think that they may be in the majority) who would not give the plant to their birds if it was the last sort of greenfood left on this planet, stating that it has chemical properties highly detrimental to the creatures' health.

For various reasons I am interested in this subject, and I would like to hear of readers' views and experiences of feeding this plant to their birds and particularly details of any casualties in which it is thought that the plant may have been responsible. Of course, I would still like to hear from bird-keepers who have fed the plant to their birds for years without noticing any apparent ill-effects.

Such collated information should prove of tremendous interest to fanciers and may help to clear up any mysticism connected with giving the plant to cage birds. The information will be incorporated in a work that I am preparing on feeding birds in captivity.

IAN WOODWARD.

66 OAK STREET,
HEMEL HEMPSTEAD,
HERTFORDSHIRE.

SPECIAL BIRD FOODS



FAMOUS
SINCE
1823

Universal (Pictorial Packet)	Fortifier	Perfort	Insectivorous (Red Packet)	Fort-Egg and Colorfort
$\frac{1}{2}$ lb. 1/10 $\frac{1}{2}$	3 oz. 10 $\frac{1}{2}$ d.	3 oz. 10 $\frac{1}{2}$ d.	$\frac{1}{2}$ lb. 3/-	$\frac{1}{2}$ lb. 2/3
1 lb. 3/6	1 lb. 2/-	1 lb. 2/-	1 lb. 6/-	1 lb. 4/6
3 $\frac{1}{2}$ lb. 11/9	3 $\frac{1}{2}$ lb. 13/6	3 $\frac{1}{2}$ lb. 13/6	3 $\frac{1}{2}$ lb. 21/-	3 $\frac{1}{2}$ lb. 15/-
7 lb. 22/9	7 lb. 26/6	7 lb. 26/6	7 lb. 38/8	7 lb. 29/9
28 lb. 85/-	28 lb. 98/-	28 lb. 98/-	28 lb. 154/-	28 lb. 112/-

HEALTH GRAINS

"GREENSTUFF"

C.L.O.

Rearing and Condition Food (Condition Seed)

$\frac{1}{2}$ lb. 1/-	14 lb. 20/-
1 lb. 2/-	28 lb. 38/6
3 $\frac{1}{2}$ lb. 5/6	56 lb. 75/-
7 lb. 10/6	1 cwt. 140/-

3 oz. 1/-
1 lb. 4/6
3 $\frac{1}{2}$ lb. 15/6
7 lb. 30/-

A dehydrated form of green food consisting of lettuce, spinach, carrot, etc., readily taken by all birds.
Packets 1/- & 3/6, also sold in bulk.

When sending for above Birdfoods please add for part cost of postage :
 $\frac{1}{2}$ lb. pkts. 6d. 1 lb. pkts. 1/- 3 $\frac{1}{2}$ lb. and 7 lb. 2/- 28 lb. and over Carriage Paid.

MEALWORMS

"MARBA" DUTCH BRED (small type)

"SANTA GERMAN BRED" (large type)

Whether you prefer the small Dutch mealworm or the larger German type, we can give you the finest service obtainable, with shipments arriving twice weekly. Dispatch guaranteed same day as orders received.

1 oz. 3/-	2 oz. 4/9	4 oz. 8/-	8 oz. 14/-	1 lb. 23/6
Also in original Boxes as imported Nett weight guaranteed				
2 lb. 45/-	3 $\frac{1}{2}$ lb. 62/6	6 $\frac{1}{2}$ lb. £6 0s. 0d.	All Carriage Paid.	

MAGGOTS

We sell only the best liver-fed maggots, specially re-cleaned and ready for immediate use for bird feeding. Packed in bran. No mess or smell.

2 oz. 3/4	4 oz. 4/6	8 oz. 7/-	1 lb. 10/6
-----------	-----------	-----------	------------

FEEDING SUNDRIES

	$\frac{1}{2}$ lb.	1 lb.
Dried Flies (Chinese)	5/-	9/6
Silkworm pupae (Whole)	3/9	6/6
" (Ground)	4/-	6/9
Dried Dragonfly larvae	6/6	12/6
Dried Shrimp (Fine, Medium, or Coarse)	2/3	3/6
Ant Eggs	13/6	25/-
Pure Dried Egg	6/6	12/6
Dried Rowan Berries (Whole)	2/9	4/6
" (Crushed)	3/-	4/9
Pure Breadcrumbs (Fine, Medium, or Coarse), far superior to biscuit meal	2 lb. 3/-; 4 lb. 5/6; 14 lb. 17/6; 28 lb. 28/-	
"Egg-crums," guaranteed to consist of 90 per cent breadcrumbs and 10 per cent pure egg	2 lb. 5/6; 4 lb. 10/6; 7 lb. 17/6	

ALL ABOVE PRICES ARE POST PAID

E. W. COOMBS, LTD.

255 Walderslade Road, Chatham, Kent

Phone : Chatham 61068

Grams : Avicult, Chatham, Kent

BOOKS on BIRDS

*Catalogue
on
request*

WHELDON & WESLEY LTD.

LYTTON LODGE, CODICOTE,

Nr. HITCHIN, HERTS.

Telephone : CODICOTE 370.

An absolute international novelty

For **simple respiratory acarlasia**
and that that is associated to
the most common complications.



"**CANDIO ACAR**," has been tested, approved
and been **adopted** by the **RESEARCH CENTER
FOR BIRD'S DESEASES (C.R.M.U.)** of the
University of Parma, controlled by
Prof. ITALO VACCARI.

**ACARICIDE CANDIOLI
SPRAY
FOR ORNITHOLOGY**

CANDIO - ACAR

International Patent

for all cage birds and for pigeons.

ISTITUTO CANDIOLI s. p. a.

Veterinary Section - Turin, Italy - Founded in 1882.

SOLE AGENTS are needed for our free zones.

When Visiting the

COTSWOLDS

AVICULTURISTS ARE WELCOME

TO

“BIRDLAND”

*Set in the charm of an
old English Garden at
the lovely Village of*

BOURTON-ON-THE-WATER

KILLS ALL MITE & LICE INSTANTLY!

*Just
spray birds
DIRECT in
the cages*

- NON-POISONOUS
- NON-IRRITANT
- ECONOMICAL

*From all
seed
dealers*

Johnson's

'ANTI-MITE'

AEROSOL SPRAY 2/7 · 4/8 · 9/9



STUDIES ON GREAT CRESTED GREBES

By
K. E. L. SIMMONS

Price 5/6 post free



PUBLISHED BY
THE AVICULTURAL SOCIETY
GALLEY'S WOOD
EDENBRIDGE, KENT

CANDIDATES FOR ELECTION

- SAVIOUR AGIUS, St. Anna House, New Street in St. Anthony Street, Balzan, Malta.
Proposed by A. A. Prestwich.
- Mrs. H. E. BROWN, White Craggs, Great Urswick, near Ulverston, Lancs. Proposed by J. S. Rigge.
- ROBERT D. CHANCELLOR, Stoke Park, Stoke Bruerne, Towcester, Northants. Proposed by F. E. B. Johnson.
- HENRY W. CLARKE, Via Maria Adelaide 6, Rome, Italy. Proposed by A. A. Prestwich.
- HUGH DALE-RUDWICK, 37 Hockliffe Road, Leighton Buzzard, Beds. Proposed by F. E. B. Johnson.
- M. GOOSSENS, 70 de Villegas straat, Strombeek, Belgium. Proposed by A. Rutgers.
- JOHN A. GREEN, Wood Hey Poultry Farm, Haddon Lane, Ness, Neston, Wirral, Cheshire. Proposed by R. T. Bloom.
- RONALD J. E. HENMAN, The Little Hut, Gobblers Hill, Gt. Missenden, Bucks. Proposed by Miss K. Bonner.
- KENNETH HILL, 5 Glenthorn Close, Shireoaks, near Worksop, Notts. Proposed by R. T. Kyme.
- J. C. HOUGH, Olivia Grove, 47 Chester Road, Winsford, Cheshire. Proposed by A. A. Prestwich.
- H. ALAN JOHNSON, Route 7 Box 229-A, Mt. Pleasant Road, San Jose, California, U.S.A. Proposed by Otis Wade.
- WILLIAM R. LASKY, 3300 Brookside Drive, Malibu, California, U.S.A. Proposed by A. A. Prestwich.
- GEORGE H. MCKAIN, 99 Chalmers Road, Gisborne, New Zealand. Proposed by A. A. Prestwich.
- RONALD H. SALES, 22 Aspinall Road, Brockley, London, S.E.4. Proposed by Miss K. Bonner.
- J. SPINKS, Old Heath Garage, New Quay, Colchester, Essex. Proposed by K. Lawrence.
- 27914 Staff Sgt. M. THOMAS, 2nd Battalion, The Royal Australian Regiment, Terendak Camp, Malacca, Malaya. Proposed by Miss K. Bonner.
- CLAUDE WALLACE, Priest Street, Alice Springs, Northern Territory, Australia. Proposed by Miss K. Bonner.

NEW MEMBERS

The seventeen Candidates for Election in the May-June, 1962 number of the AVICULTURAL MAGAZINE were duly elected members of the Society.

CHANGE OF STYLE

The Reverend Canon J. R. LOWE.

CHANGES OF ADDRESS

- Mrs. MURIEL M. ADAMSON, to 107 S. Rosewood Drive, Albany, Georgia, U.S.A.
- FELIPE BENAVIDES, to Nicolás de Piérola 742, Of. 709, Lima, Perú.
- CLIVE W. DESMOND, to 245 Edgware Road, Colindale, London, N.W.9.
- G. H. PETER FRANK, to 2227 Donnie Road, Costa Mesa, California, U.S.A.
- Mrs. ANTHONY GASCOYNE, to Currall Hall, Tenbury Wells, Worcestershire.
- Miss DIANA GURNEY, to Orchard Cottage, North Runcton, King's Lynn, Norfolk.
- ALEX J. HARRIS, Jr., to 5420 Bradley Blvd., Alexandria, Virginia, U.S.A.
- EDWARD J. MARUSKA, to Cincinatti Zoological Society, 3400 N. Vine Street, Cincinatti 20, Ohio, U.S.A.
- FRANK MISER, to 8990 Cerritos Avenue, Anaheim, California, U.S.A.
- PHIL ORSATTI, to 1834 Weston Road, Weston, Ontario, Canada.
- E. E. ŠLACK, to Daisy Farm, 15 Church Street, Heanor, Derbyshire.
- FRANK SMITH, to 115 Whinney Lane, Lammack, Blackburn, Lancs.
- JOHN R. ZEY, to 400 10th Street, Taft, California, U.S.A.

DONATIONS (Coloured Plate Fund)

	£	s.	d.
H. R. Anderson . . .	3	10	0
I. V. Hyndman . . .		10	0
Dr. L. Swaenepoel . . .		10	0
H. E. Temlett . . .	1	0	0

MEMBERS' ADVERTISEMENTS

The charge for Members' advertisements is THREEPENCE PER WORD. Payment must accompany the advertisement, which must be sent on or before the 15th of the month to A. A. PRESTWICH, GALLEY'S WOOD, EDENBRIDGE, KENT. All members of the Society are entitled to use this column, but the Council reserves the right to refuse any advertisements they consider unsuitable.

For Indian Birds buy direct from Baidyanath Acooli, 8/5a Barrackpore Trunk Road, Calcutta 2, India.

For Sale. One Cock Chinquis Peacock Pheasant, 1961. Perfect condition, £29.—A. Dupont, 25 Ermitage, Wavre, Belgium.

For Sale. Cape, Chilian, Chestnut Teal ; Fulvous Tree Duck ; Garganey, Pintail, Philippine Duck ; Chiloe Wigeon ; Red-crested Puchard ; Carolina and Mandarin Duck ; Reeves', Golden, Silver, Swinhoe's and Melanistic Pheasants. All 1962 birds.—Mark Vinson, Shute Cottage, Kellaton, Kingsbridge, South Devon.

For Sale. Redrumps, £9 pair, with split-yellow cock £10 ; carriage 4s. Callers welcome.—John Woodnutt, 7 St. Peters Road, Burgess Hill, Sussex.

Wanted. Cock Scaley Dove and hen Diamond Dove.—Lt.-Col. H. W. Clayden, Woodlands, Wyre Forest, Nr. Kidderminster.

Japanese Quail (*Coturnix japonica*). Your inquiries are invited for breeding pairs or trios.—Thos. Thomson, 61 John Street, Penicuik, Midlothian, Scotland.

Wanted. Good prices offered for Cayley, *Australian Parrots ; Catalogue of Birds, British Museum, Vol. XX (Psittacidae)*.—J. L. Albrecht Møller, Christen Kolds Alle 1, Kastrup, Denmark.

Wanted. Ogilvie-Grant, *Hand-Book to the Game-Birds ; D. G. Elliot, Monograph of the Phasianidae*.—A. Dupont, 25 Ermitage, Wavre, Belgium.

598.20542
194
Birds

K-8

AVICULTURAL MAGAZINE



CONTENTS

	PAGE
Breeding of Rothschild's Grackle (<i>Leucopsar rothschildi</i>), (with plates), by KENTON C. LINT	153
The Breeding of the Rubythroat (<i>Calliope calliope</i> (Pallas)), by Mrs. K. M. SCAMELL	155
The Breeding of the Himalayan Rubythroat (<i>Calliope pectoralis</i> (Gould)), by Mrs. K. M. SCAMELL	158
The Breeding of the Pied Bush Chat (<i>Saxicola caprata</i> Linnaeus), by Mrs. K. M. SCAMELL	162
Clères 1962, by J. DELACOUR	165
Hooded Mergansers, by ROBERT A. COPLEY	166
Unusual Diet of an Eider Duck, by J. O. D'EATH	168
New Efforts in Breeding the Great Bustard (<i>Otis tarda</i> L.), by WOLFGANG GEWALT	169
A Nesting of the Key-West Quail Dove: Third Report, by Professor CARL NAETHER	170
News from Chester Zoo, by A. W. E. FLETCHER	173
London Zoo Notes, by J. J. YEALLAND	174
British Aviculturists' Club	175
Blue-headed Waxbill	175
News and Views	176
Correspondence	178

THE AVICULTURAL SOCIETY

Founded 1894

President : D. Seth-Smith, Esq.

**Hon. Secretary and Treasurer : A. A. Prestwich, Galley's Wood,
Edenbridge, Kent.**

Assistant Secretary : Miss Kay Bonner.

Membership Subscription is £1 per annum, due on 1st January each year, and payable in advance. Life Membership £15. Subscriptions, Change of Address, Names of Candidates for Membership, etc., should be sent to the Hon. Secretary.

THE AVICULTURAL SOCIETY OF AMERICA

Hon. President : Mr. Jean Delacour.

President : Mr. Paul Schneider.

**Secretary : Mr. Otis Wade, 1806 Redesdale Avenue, Los Angeles 26, Calif.
U.S.A.**

The annual dues of the Society are \$2.50 per year, payable in advance. The Society year begins 1st January, but new members may be admitted at any time. Members receive a monthly bulletin. Correspondence regarding membership, etc., should be directed to the Secretary.

THE AVICULTURAL MAGAZINE

The Magazine is published bi-monthly, and sent free to all members of the Avicultural Society. Members joining at any time during the year are entitled to the back numbers for the current year on the payment of subscription. All matter for publication in the Magazine should be addressed to :—

**The Editor : Miss Phyllis Barclay-Smith, 51 Warwick Avenue, London,
W. 9. Telephone : Cunningham 3006.**

The price of the Magazine to non-members is 7s. 6d., post free, per copy, or £2 5s. for the year. Orders for the Magazine, extra copies and back numbers (from 1917) should be sent to the publishers, Stephen Austin & Sons, Ltd., Caxton Hill, Ware Road, Hertford, England. Telephone : Hertford 2352/3/4.



Copyright]

[San Diego Zoo

ROTHSCHILD'S GRACKLE, *Leucopsar rothschildi*

AVICULTURAL MAGAZINE

THE JOURNAL OF THE AVICULTURAL SOCIETY

Vol. 68.—No. 5.—All rights reserved.

SEPTEMBER-OCTOBER, 1962

BREEDING OF ROTHSCHILD'S GRACKLE

By KENTON C. LINT (Curator of Birds, San Diego Zoological Garden, California, U.S.A.)

A pair of Rothschild's Grackles, *Leucopsar rothschildi*, or White Bali Mynahs, successfully nested and reared a youngster in the Zoological Garden of San Diego in 1962.

This beautiful crested Grackle is snow-white in color, with the tail and wings tipped with black and the face a lovely soft blue. It is found only on Bali, an Indonesian island of 2,000 square miles located a little more than one mile from the east coast of Java. Bali is composed of green rolling grain fields and forests of coco palms, nutmeg, tamarind, banyan, and other tropical trees.

This bird is loved and widely protected by the Balinese. The White Bali Mynah seldom is exported from the "Island of the Gods". A special trip to the famous Bogor Botanical Gardens and Institute for the Conservation of Nature in Indonesia was necessary before special permits could be issued by T. Maden Taman, Director, Kepala Lembaga Pengawetan Alam, to allow the exportation of four White Bali Mynahs from the Surabaya Zoo.

The four Rothschild's Grackles arrived in San Diego on the 13th September, 1961, in splendid condition. After the necessary quarantine and observation period at the Zoo Hospital the four birds were released in the Rain Forest aviary. Rocky ledges and nesting crevices have been designed for nesting in the upper area of this aviary.

Webster Tyrrell, Bird Keeper in the Rain Forest, was encouraged to work with the new acquisitions, particularly to stimulate nesting activities. Building materials, grasses, small sticks, feathers, leaves, and pieces of colored yarn were brought into the aviary for building nests. Keeper Tyrrell soon observed that a pair had found a nesting hole in the upper part of the flight cage and were busy carrying nesting material. Both male and female Grackles worked in building and lining the nest as a team effort. The depth of the nesting site and the small opening at the entrance prevented the keeper from seeing the clutch of eggs inside the nest.

We were able to determine the approximate dates of egg laying, as

the hen would disappear into the nesting hole when laying and the male bird would guard the nesting area or territory. From February to June the hen laid five times. As the normal clutch of eggs is said to number three, this would be fifteen eggs produced in a five-month period.

Persistence is important in breeding birds. Disappointments are expected when raising insectivorous birds. In February eggs were laid but soon disappeared. In March the second nest was made, eggs were laid and again disappeared. In April the third nest was made and nestlings hatched, but they were deserted when a few days old. In May the fourth nest was completed, but again the nestlings were deserted at an early age.

The pair's fifth attempt this year proved to be successful. Because of close observations of the pair we believe the first egg was laid on the 6th June, the second on the 7th, and the third on the 8th.

On the 22nd June both of our Bali Mynahs met the keeper at the entrance door of the aviary, and Webster Tyrrell knew their young had hatched. An incubation period of fourteen days had been verified for this species. Mealworms were fed immediately to the parents, and both male and female birds would pick up five to six mealworms at a time before carrying this food to the nestlings.

The birds were placed on a definite hourly feeding schedule of insectivorous food during each eight-hour day. We could hear the nestlings at feeding time, as they are quite noisy in begging for food; and we continued to provide a liberal supply of insects.

Fresh ground meat, earthworms, cockroaches, berries, fruit, and bread were offered to the parent birds during the nesting cycle by Keeper Tyrrell. All were rejected and untouched by them as unsuitable for the nestlings.

Only mealworms were carried to the nest and fed to the young birds. One hundred and fifty to two hundred mealworms were consumed by the nestlings each day. As the youngsters grew in size the quantity of insectivorous food also was increased day by day.

The first young Bali Mynah came out of the nest on 11th July at the age of twenty days. Almost fully fledged and two-thirds the size of the parent bird, the young bird is almost an exact miniature of the adult, except for being slightly paler in color. The silky crest is not developed at this early age. The soft blue face patch around the eye, the black tipped tail, the black wing tips and the rest of the plumage, however, are identical with the adult birds.

It is believed this may be the first breeding record of the Rothschild's Grackle in captivity in the United States. A search of the literature discloses one record in Great Britain—Rothschild's Grackle, *Leucopsar rothschildi*, bred by Alfred Ezra in 1931, one young bird reared: a first (*A.M.*, 1931, 305).



Copyright]

[San Diego Zoo

YOUNG ROTHSCHILD'S GRACKLE, 20 DAYS OLD, HATCHED IN ZOOLOGICAL

GARDENS OF SAN DIEGO, 22ND JUNE, 1962

[To face p. 154

THE BREEDING OF THE RUBYTHROAT

(Calliope calliope (Pallas))

By Mrs. K. M. SCAMELL, (Newdigate, Surrey, England)

The Rubythroat, sometimes referred to as the Common Rubythroat to differentiate it from the Himalayan Rubythroat (*Calliope pectoralis* (Gould)), is also called the Chinese Rubythroat and perhaps more correctly Siberian Rubythroat and it is so called in Gould's *Birds of Asia* and other reference books such as *South China Birds* by Caldwell and Caldwell. It is a winter visitor to Formosa, the Philippines and north-east India and it is from the latter country that the bird is usually imported into the U.K. It breeds in north-west China, in Siberia and other areas of northern Asia. The upper plumage of the male Rubythroat is olive-brown, the wings and tail brown, with the wings edged a lighter brown than the back. There is a superciliary stripe from the base of the bill to behind the eye and a broad white molar stripe. On the chin and throat is a brilliant patch of ruby-scarlet, bordered with black. The breast is a lightish grey and the abdomen and under tail-coverts whitish. The hen is similar to the male except the white stripes are indistinct and the throat normally whitish. Young cocks are similar to the normal hen but on moulting show the adult male plumage even though the throat patch has less red. In *Birds of Eastern China* (La Touche) it is said that old females do show faded red throat patches and some have it as well developed as young males. Provided these birds have proper feeding and can be housed in a planted aviary in summer, it is my experience there should be no fading of the throat patch with age.

My first cock Rubythroat was obtained from Mr. Raymond Sawyer immediately after the January 1957 National Show where it was first in its class. It had then been in captivity about a year. It was a lovely bird, very tame and knowing and on the many occasions I exhibited it subsequently it invariably stood close to the cage front and "invited" the judge (so I have been told) to give it a red ticket! Over the years I purchased "three hens" in the hope that it would breed. The first two moulted out cocks and thus another summer would be wasted and I would have to dispose of the unwanted extras.

The third hen was purchased from Mr. Dineen of Colliers Wood in the winter of 1960 and was turned out with the old cock in the spring of 1961 in its usual aviary which has a planted flight 15 feet long $\times$ 6 feet high $\times$ 3 ft. 6 in. wide, with a shelter heated to ensure the night temperature did not fall below about 40° F. Rubythroats are hardy, however, but all the same I believe all foreign birds require some heat during the long cold winter nights in this country. The old cock Rubythroat, however, had been showing signs of age and to my deep regret did not survive a late summer moult although it retained its scarlet

throat patch to the end. No breeding had occurred although at times the hen disappeared for long periods beneath some old tree stumps in the heavily grassed aviary and I would feel certain it was nesting somewhere. The hen moulted out a hen, the first I had seen, so this winter (1961-62) we bought another cock Rubythroat. It was selected from an importation Mr. Dineen had just received and although rough in feather and as wild as our first cock was tame, it was a fine specimen. The hen spent the winter in the usual aviary and shelter which she shared with a pair of Golden-fronted Fruit-suckers, a seven-year-old cock Scarlet-breasted Sunbird, a pair of *Ixulas* and a pair of *Zosterops*. She had become very tame and it was a battle of wits between her and the Fruit-suckers for the daily ration of mealworms.

The new cock Rubythroat, now in better plumage and with a scarlet throat patch which almost equalled that of his predecessor, was released from his cage into the aviary in late April and quickly settled down. He was, and is, a shy bird and both appeared to ignore one another. No sparring, even at mealworm time, has ever been seen between them. We replaced the old tree stumps half-way up the planted aviary with one large one and to this we nailed a nest-box with a half-open front facing north-west and only about 6 inches above the ground. I made a point of always placing the mealworm ration for the Rubythroats under the stump—it ensured that they had their share otherwise the Fruit-suckers and *Ixulas* would wolf the lot. Consequently the Rubythroats looked upon the stump as their territory.

On the morning of 16th June I observed the hen pulling at grass. She would heave until on occasions she fell over backwards! All this occurred within a few feet of us. The hen was quite unconcerned at our presence and the grass was taken by her to the nest-box. I then decided to remove the pair of Fruit-suckers to another aviary and threw in several handfuls of new grass in the hope of easing the Rubythroat's nest-building task which seemed to be completed by the next day.

For the next three days I kept clear of the nest-box but on the 21st placed my hand inside to feel three or four eggs in a deep grass cup—too far down to risk lifting one egg out. I did not examine the nest again until the 27th June when I felt either four or five eggs. All this time I placed a food pot under the tree stump.

Late in the afternoon of the 3rd July I felt in the nest again—still the eggs—but at 8 a.m. the following morning there was one youngster and by 5 p.m. that day there were two more plus one egg, so the total eggs must have been four.

Throughout the day I fed a few clear mealworms at intervals. All during the incubation period the cock bird was hardly to be seen and when it was it perched in a small cherry tree over the stump. It sang frequently during incubation by the hen but I cannot recall it doing so after the young hatched.

I searched for ants' eggs but without success so on the evening of 4th July Mr. M. D. England of Oxted kindly gave us a supply of locusts and "little" mealworms and some of these were supplied to the hen Rubythroat over the next two days. The locusts quickly disappeared from sight and I can only assume she caught them but the "little" mealworms were much appreciated and fed to the young. At no time did I see the cock feed the young birds. The hen was completely tame. I continued to pick over my diminishing supply of normal mealworms for the clear ones and placed what I could of these in the dish under the stump and when it rained, in a dish in the shelter. Mealworms were getting short, due to the German supplies almost drying up and although Mr. Coombs of Walderslade let me have what he could and I obtained an odd $\frac{1}{2}$ lb. from dealers and friends here and there, it began to look as if I should run out.

I had three other species of soft-bills with young birds at the time, including a clutch of three Blue-headed Rock Thrushes which alone consumed about $\frac{1}{4}$ lb. of mealworms a day.

It rained heavily for the second successive day on Saturday, 14th July, and the next afternoon I noticed the parent flying about in an excited fashion from end to end of the flight. I made a search and found two young Rubythroats lying outside the nest. They were soaked and had been dead some hours. I felt inside the nest. There was still one youngster alive—it was warm and seemed larger than either of the two dead fledglings. I cannot think what caused this to happen. There was no actual shortage of normal mealworms which with gentles had been fed *ad lib.* even although clear mealworms were not always available.

The next day, Monday, 16th July, the one remaining youngster left the nest. It seemed to me premature and I returned it three times but it did not remain inside very long, which is usual once a soft-bill decides to leave home, even although it was barely thirteen days old. The young bird had long, light-coloured legs out of all proportion to its roundish short-tailed speckled and barred grey and brown body. Both the parents now played up each time I entered the flight, indulging in considerable "tchek tcheks", repeated again and again.

The young bird slept out in the grass that night and the following night was seen at the base of a small privet at dark when it was raining heavily. It was only seen to be fed by the hen. On Friday, 20th July, it was raining heavily again and the young bird was placed inside the shelter for the night. The next day it was seen to make short, scrambling flights, then climbing up the netting, it flew into the flight.

From that time although it is seen mostly on the ground, as are most Rubythroats, it could fly quite well but was not seen high up. The hen Rubythroat was now in a heavy moult and as this started when the two dead fledglings were found, I wondered if this had any bearing

on their death. During the last week in July the cock started to moult also and on 5th August had no tail and looked generally bedraggled.

During the last week the young Rubythroat has been flying well and feeding from the food dish containing my usual soft-food, gentles and mealworms morning and night. On 7th August I watched for over an hour during which time both parents and the young bird helped themselves to the live food in the dish ; on two occasions the young bird “gaped” to the hen who made no attempt to feed it. The young bird did not seem too concerned at the refusal and fed from the contents of the food pot. It has grown substantially during the last week and its tail is now full length. Its spots and bars seem to be slowly disappearing or merging but as yet there is no indication of its sex.

As described above, Mrs. K. M. Scamell has bred the Rubythroat, *Calliope calliope*. It is believed that this may be a first success.

Any member or reader knowing of a previous breeding of this species in Great Britain or Northern Ireland is requested to communicate at once with the Hon. Secretary.

* * *

THE BREEDING OF THE HIMALAYAN RUBYTHROAT

(*Calliope pectoralis* (Gould))

By Mrs. K. M. SCAMELL (Newdigate, Surrey, England)

The Himalayan Rubythroat is similar in size to the Common or Siberian Rubythroat (*Calliope calliope* (Pallas)) but is of more slender build and very different in appearance. The chin and throat are bright crimson, deeply bordered with black, but here the resemblance to *C. calliope* ceases. The head and upper parts are ashy-slate and the forehead is white. There is no white superciliary streak. The abdomen is white and the base and top of the tail feathers are also white. The female is olive-brown above and the chin and throat are whitish.

As its name implies *C. pectoralis* breeds throughout the Himalayas. In *Breeding Birds of Kashmir* (Bates and Lowther) the lowest altitude nesting which had been observed by the authors was 10,000 feet although other writers had recorded breedings down to 9,000 feet. Salim Ali in *Indian Hill Birds* says : “ It is an inhabitant of steep rocky and grassy slopes at high elevations, in the zone above the level of tree growth and just below the snow. It also frequents rocky hillside with juniper. . . . ” In winter the bird descends into the foothills to about

3,000 feet although a few may reach the nearby plains. In movement and behaviour the Bluethroat, the Rubythroat and the Himalayan Rubythroat have much in common, but from my experience in keeping all these species, I would say the Himalayan bird is more prone to fly upwards when approached whereas the two former birds will scuttle along the ground.

Our pair of Himalayan Rubythroats were purchased from Mr. P. H. Hastings of Portsmouth in the late summer of 1960. They were stated to have been caged together for some months. After they moulted we showed them at the 1960 National Show when the cock set about the hen and we had to separate them. He was placed seventh in the class. It sometimes happens that a change of surroundings brings out the worst in man and bird!

After separately caging all the winter we turned them out into a planted aviary in the spring of 1961, first the hen for three or four days, then the cock. This is the reverse of what normally occurs in many migrating birds when the cocks arrive before the hens. I find that in captivity it is the hen who requires time to get her bearings and find the food pot before the cock arrives and I have yet to lose a hen when introducing a pair this way.

The aviary measured 16 feet in length $\times$ 4 ft. 3 in. in width $\times$ 7 ft. 6 in. in height. At one end is a raised shelter and near to it is an old and substantial cut down hazel-nut bush. The flight was grassed and planted with a prunus at the far end from the shelter where there is a side entrance, also a rhododendron and a Russian ivy—in fact it is a difficult aviary to see into, particularly as it has four other similar aviaries on one side of it and two on the other. I feed through a little hatch into the shelter and there is a water pot at the other end. I do not need, therefore, to enter the flight to either feed or water. We fixed an open-fronted nest box measuring about 8 $\times$ 9 $\times$ 8 inches deep right in the middle of the hazel-nut bush about 18 inches off the ground, and facing west—a position which gave the greatest privacy. Hazel comes into leaf rather slowly and it seemed that our pair would never attempt breeding.

About the middle of June the cock Himalayan Rubythroat commenced to sing very beautifully from a branch of the prunus, remote from the shelter and the hazel bush. On the 18th June I placed my hand in the nest box and there was evidence of nest building. On the 22nd June there were two eggs in a deep cup—on the 24th still two eggs and these were cold. I had a look at them—they were deep blue, almost a Wedgewood blue. On the 25th June my diary recorded “Himalayan Rubythroat hen sitting again”. On the 30th June there were three eggs and I diarized that the first egg was due to hatch about the 6th July. The forecast could not have been much further out and as I made a daily inspection in the jungle of this overplanted aviary, I wondered if the

eggs were added. On the 14th July there was still no sign of hatching but at 9 a.m. next day (i.e. the sixteenth day after the third egg had been seen) there was a young Rubythroat in the nest. I fed ants' eggs and mealworms at intervals. On the morning of the 16th July the baby Rubythroat was found lying dead near the water pot 10 feet from the nest. There was only one egg still in the nest and I removed this; it was clear. What a disappointment. Shortly afterwards the hen started to moult, followed by the cock and that was the end of the breeding of this species in 1961.

We showed the pair once or twice, including the 1961 National and they were fourth in their class. On this occasion they agreed perfectly. This spring we decided to place them in another aviary, one measuring $6 \times 6 \times 3$ feet—much smaller than the previous one. Even so, it was heavily planted and contained a tree stump to which we nailed the usual open-fronted nest box. It was a hopeless situation—every time one neared the flight the birds were disturbed and I began to think about returning them to last year's aviary which was empty and more overgrown than ever.

About this time (16th June) the Common or Siberian Rubythroats had started to nest in their aviary which contained a mixed collection of birds, including a pair of aggressive Fruit-suckers. Our mind was made up for us—out went the Himalayan Rubythroats to their old 16-ft. aviary and in went the Fruit-suckers into the smaller aviary where, incidentally, they seem quite happy although we have long ago given up any idea of them breeding.

Both Himalayan Rubythroats promptly disappeared from our sight but in a few days the cock was again singing from his old perch in the prunus tree. The hen was never seen unless I entered the flight, yet there was no sign of any nest building in the nest-box. At this stage I decided that other than a weekly visit to the nest-box, I would leave the birds severely alone. The cock continued its singing and the hen was always missing. On the 27th June I recorded "no sign of nesting in last year's nest-box". I did not see the hen Himalayan Rubythroat at all on the 4th and 5th July. On the 8th July the nest-box was examined but no nesting had been attempted. I did, however, flush the hen from the base of the hazel tree which I could not reach because of the heavy growth and the risk of disturbing a possible nest. The grass was very thick and tall in the flight so I decided to leave well alone.

On the 15th July, after two days without seeing the hen, I felt fairly certain the bird was incubating and to ensure that there was ample live food I fed normal mealworms several times a day from then onwards—gentles were always available and also fed a mass of cooked ant-eggs mixed with pine needles which a visitor had kindly left. Consumption of mealworms was not unduly high but steady. These

birds have never been very greedy but I was now very sure that some young were hatched even although the precise nesting place was uncertain. Remembering last year's failure I did not intend to disturb them and when on the 20th July I saw the Himalayan hen she had the rough appearance of a parent busy feeding. Mealworm consumption increased.

On the 29th July we both got a fleeting glimpse of a young bird before it disappeared under the hazel bush. We could not stay too long because in an adjacent aviary was a hen, Red-flanked Bush Robin, sitting on three very coffee coloured eggs. The only other birds in that aviary were a pair of Cockatiels, also on eggs, a hen Tickell's Flycatcher and a cock Loo-choo Robin.

We decided not to linger in case a hybrid breeding was in the offing. Two days afterwards (31st July) I saw a young Himalayan Rubythroat flying strongly. It was fully feathered, its tail much longer than was the case with a young Common Rubythroat. Like its parents, it preferred the upper branches of the hazel bush to running along the ground. The hen was in quite a moult but the cock had not dropped a feather.

One evening later we found the Red-flanked Bush Robin's nest deserted in the adjacent aviary and the three brown eggs gone, so we made a thorough search of the Himalayan Rubythroat flight and found a neat grass cup on the ground under a tuft of grass. It was damp and contained one blue egg which was addled and slightly chipped. It was located under the rhododendron bush which had been in full flower probably during the time of its construction and during the incubation period. It was nearly 6 feet from the hazel bush where we mistakenly thought the hen had her nest. How I had missed treading on this tuft of grass during my frequent visits to this narrow aviary, I shall never know. Never once did I disturb the bird from its nest, not even when I sprayed water on a newly planted Russian ivy only a few feet from the tuft of grass. It may be, of course, it had always left before I arrived and was hidden in the hazel bush.

At the time of writing, 15th August, the young bird is feeding itself and is independent of its parents. All three birds are often together on one perch and the youngster is as large as the hen. In colouring it is brown with the head, chest and back speckled. In front the speckles merge into lightish under parts. The wings and tail are a deeper brown with a few lighter spots and the base of the tail has a small rufous patch. The legs are flesh colour.

As described, Mrs. K. M. Scamell has bred the Himalayan Rubythroat *Calliope pectoralis*. It is believed that this may be a first success.

Any member or reader knowing of a previous breeding of this species in Great Britain or Northern Ireland is requested to communicate at once with the Hon. Secretary.

THE BREEDING OF THE PIED BUSH CHAT

(Saxicola caprata Linnaeus)

By Mrs. K. M. SCAMELL (Newdigate, Surrey, England)

The male chat which is about 5 inches in length is jet black all over, including bill and legs, except for three white areas, one at the base of the tail, the lower abdomen and a broad wing patch.

The female is brown, deeper on the wings, tail and breast. The rump is a pale rufous colour. According to the reference books, at least three races are found throughout the Himalayas up to 8,000 feet and on the plains and lower hills in open country. Differences between them depend on the size of the bill or wing, or the extent of the white on the under parts of the cock bird. The Pied Bush Chat is said to occur also in Afghanistan, Persia, Burma, the Philippines and Java.

Our pair came from India and were purchased from Mr. Dineen of Colliers Wood in the winter of 1960-61. I seem to recall quite a number came over at the same time and our pair was at first caged separately and then turned out into an aviary with a shelter in the late spring of 1961. The cock was reasonably steady but the hen very wild and is so to this day. They were separately caged again last winter and this spring were turned out into an aviary measuring 11 feet long $\times$ 6 feet wide $\times$ 5 ft. 9 in. high, including a shelter at one end. This shelter has a concrete floor and the aviary is in a small wood. Besides the chats it houses a pair of Golden-winged Sunbirds, a pair of Diamond Doves and two Webb's Crow Tits, both believed to be cocks. One of them was originally paired to a hen which nested and produced eggs two years ago but we unfortunately lost her egg bound.

In the planted flight we laid a large tree stump on its side and nailed a half open-fronted nest-box to it a few inches off the ground as these chats are reputed to nest in hollows, on the ground or almost so, or in crevices or holes in stone walls etc., or in the face of banks. The bird is, however, stated to be a ground builder which conceals its nest very well. In addition to this nest-box, there were several others, both open fronted and one with an entrance hole in the flight, at roof height or below, and two cardboard boxes (i.e. of the type used for dispatching birds) in the shelter—one 4 ft. 6 in. high, facing south, and the other 5 ft. 6 in. high, facing north. All boxes had a handful of grass inserted. The shelter was very gloomy even although it was fitted with a large opening window on the north side. Because of the trees the sun did not penetrate too well. The flight contained a newly planted Russian ivy, a thornless rose and a couple of mock currant bushes. As the spring advanced it was carpeted with bluebells, followed by bracken.

From time to time I had a quick look at the various nest-boxes but there was no sign of nesting. Moreover I always saw the birds although

this is not always a sign that birds are not nesting, particularly as this aviary was next to the end of a range of about twenty of various shapes and sizes—hence the birds could always hear one approaching.

On Saturday, 9th June, in an adjacent aviary I picked up a hen Shama which had just laid an egg which was broken. Although she was placed in a hospital cage and given brandy, she was badly shocked and did not recover. In the Shamas nest was an egg which my husband took and decided to place in some other softbill's nest. First, he examined the nest-boxes in the adjacent Bush Chat's aviary and to his surprise found a single warm egg in a deep grass cup in one of the two cardboard boxes in the semi-dark shelter, the box facing south. Wondering whether the egg belonged to the Crow Tits (which also use a cup-shaped nest) or the Pied Bush Chats which should not nest in such a site according to the text books, he carefully removed the single egg and broke it! This was bad enough if the egg was the first of a clutch. The broken egg, however, contained a young bird almost ready for hatching and that was that! The Shama's egg (which, incidentally, is really quite small for the size of the bird) was inserted and we came away hoping we should be forgiven!

A week later I examined the nest again and the Shama's egg had disappeared, the nest was empty and the hen Pied Bush Chat was flying about as wild as ever. Our breeding hopes had now reached zero.

On the 23rd June, however, there was a single egg in the nest and on the 27th June there was a second egg so we were indeed forgiven. On the 7th July at 9 a.m. there was only one egg in the nest but at 11 a.m. I decided to go and have another look because it should have hatched and sure enough there was a young chick. I immediately fed clear skinned and normal mealworms, a dish inside and outside the shelter. With the competition from the Crow Tits it was essential they should not be kept short. It had not been possible to catch the Crow Tits and remove them elsewhere. They were far too lively and I did not want to upset the Bush Chat.

In the wild state the Bush Chat is stated to lay three or four eggs and somehow I cannot believe it laid just one in the first clutch. It is likely one, or more, hatched earlier and died because of the lack of suitable live food due to the Crow Tits. The second egg in the second clutch may also have hatched a day or two earlier and the youngster may have met the same fate.

For the next fortnight I fed ample mealworms, soft skinned or otherwise, and a few live ants' eggs when I could find them. On the 15th July I decided to have a look at the youngster—it was quite small and partly fledged. During the week I poured a mass of pine needles and cooked ants' eggs, which a visitor had kindly given me, onto the concrete floor of the shelter as I feared the bird might leave the nest and injure

itself on the floor. In spite of every encouragement from me (I examined the nest twice a day !) the bird did not leave the nest until about 3 p.m. on the 22nd July, the sixteenth day after hatching—quite a while for a singleton.

It was perfectly feathered with a full tail, the long chat-like legs of its parents and a white rim around the mouth. The behaviour of the parents had changed and from timid birds they became most noisy and aggressive. The male bird spread his wings and with pointed beak adopted a threatening attitude when I refilled the food pot. When I entered the shelter it came in through the pop-hole—the first time we had ever been in the shelter together ! The young bird quickly found its way outside and, as the days went by, hid in all sorts of places. The noise and behaviour of the parents, however, generally led me to it. I caught it by hand on the netting on 5th August.

In colour it is a smokey brown, barred and spotted, and darker on the wings and with a tail almost black—grey-black would be a better description—and with a lighter almost fawn bar across each wing. The abdomen was also lighter. I am pretty sure it is a cock. On release it perched steadily and fearlessly, as it always did, and waited for both its parents to feed it. Although we both watched it for an hour from a concealed point, it made no attempt to feed itself. The parents do not fuss so much now so I think it will be independent before long.

Throughout the incubation period and before it, the cock sang continuously. It has a very pretty song. I saw no interference with or by the Webb's Crow Tits who must have indulged in an excessive mealworm diet throughout the rearing period. I do not believe in too many mealworms except when breeding so I hope they do not come to any harm. The Sunbirds ignored everybody. The Diamond Doves were removed to another aviary the day the first egg was broken.

On 12th August, just three weeks after it left the nest, continuous observation showed it could feed itself and its parents had ceased to feed it. The marking around the mouth is disappearing and the scale-like appearance which was so noticeable at first is lessening.

As described, Mrs. K. M. Scamell has bred the Pied Bush Chat *Saxicola caprata*. It is believed that this may be a first success.

Any member or reader knowing of a previous breeding of this species in Great Britain or Northern Ireland is requested to communicate at once with the Hon. Secretary.

CLÈRES 1962

By J. DELACOUR (Clères, France)

The spring and early summer of this year have been unusually cold and dry. Vegetation was a good month late compared to a normal season, and this was extremely detrimental to the breeding of birds. Many simply did not come into breeding condition, and others laid only when the summer was well on, which means that their young will hardly have the time to develop before the autumn arrives. This has been particularly true of the Rheas ; the first broods hatched in July and the second in September. We have quite a few chicks however, including white ones.

The Emus we now have are most annoying : the female will not accept any of three males ; whenever one is introduced into her pen, she gives him such a beating that he has to be promptly rescued. So there is no hope of broods. We have found that Emus are impossible at liberty in the park as, sooner or later, they will attack and kill, or wound, young deer, antelopes and wallabies, cranes, geese and ducks. Curiously enough they completely ignore pheasants, peafowls and other game birds which enter their enclosures. Rheas, on the contrary, are completely harmless to all animals and birds. The breeding pair of Stanley Cranes lost their first two young as usual although they now live in the deer park, on the slopes. The second nest was mysteriously robbed ; then the female broke her leg, which is now on the mend. Among the swans, geese and ducks, relatively few bred successfully this year. Crows, Magpies and Jackdaws have been a real nuisance in the spring. We however have six young Orinoco geese, four Australian Radjahs (from the last pair in Europe at present), some Hawaiian ducks and Versicolor Teal, and half-a-dozen hybrid Brazilian Teal $\times$ Carolina. As I consider the two species to be closely related, it will be interesting to see if their offspring is fertile, and therefore confirm my opinion. Although the males are not yet in breeding plumage, I hope they may turn out to be beautiful. The juveniles resemble their Brazilian father more than their mother.

Pheasants were very disappointing : we had no Mikados, Tragopans, Ceylon Junglefowl nor White Eared Pheasants. But a pair of Grey Peacock Pheasants produced four lots of chicks and a pair of Brazilian Curassows, two pairs. The doves were especially disturbed by the cold weather and started breeding very late. There are young Galapagos, Greenwings, Common and Brush Bronze-wings, Wongas, Bleeding-hearts, Red Mountain and *Caniceps*, and a few other common species were reared, but not as many as could be expected. A pair of Indian Cuckoo Doves have been added to the collection (*Macropygia unchall*). In the park, the Brush Turkeys built a puny pile of leaves and never laid, another probable result of the cold spring and early summer.

The various indoor and outdoor aviaries are well stocked, and we had very few losses of the birds which were there last year. The most attractive additions have been five European Bee-eaters, hand reared from the nest. They are tame, they eat strips of lightly cooked meat, insect mixture and grated carrots, with only a few mealworms a day ; they are in perfect condition, inhabiting a large indoor flight. There is also an interesting pair of Yellow-crowned Mynahs (*Ampeliceps coronatus*) and some Rothschild's Starlings.

I am now making a new duck enclosure across the road, where there are already a number of waterfowl pens along the river. Next to it will be a water garden. This area is not visited by the public, and the new garden will be enjoyed by creatures who appreciate quiet, peace, seclusion, and privacy. These include the owner of Clères and his personal guests.

* * *

HOODED MERGANSERS

By ROBERT A. COPLEY, (Hemingford Grey, Hunts., England)

In 1959 two pairs were obtained from Charles Pilling of Seattle, U.S.A. The following year one female died mysteriously. No cause of death could be found. The disease affected the vent, which had obviously been inflated and then deflated.

In 1961 a further female was provided from Seattle. Up to this time the Mergansers had been confined to water which was part of a lake, but thought to be rather stagnant. Late in 1960 they were released into the complete lake of about $5\frac{1}{2}$ acres, with plenty of fish in it and plenty of fresh water. Some fifty other birds were in the same lake.

In March 1962, two round eggs were found in a Mandarin's nest. In April these eggs hatched out under a bantam, having been sat on for a fortnight by the Mandarin. It was quite a surprise to find among them the little sharp face of a Merganser. This bird was promptly isolated with two Mandarins and given to one reliable bantam, and feeding commenced with bread-and-milk through an eye dropper. Very quickly the little Merganser started taking bread-and-milk and crumbs. When called it would come away from its mother for the purpose of being fed. It was feeding well on the third day. After it had been feeding for ten days it suddenly appeared very listless, and died in a few hours.

Look-out was kept for other Merganser eggs, and it was discovered that one of the female Mergansers was laying in one particular nest, a box in a tree, and that she had started to sit on eight eggs. They were not interfered with for a fortnight, until she was discovered off the nest. The eggs were then hastily removed and tested, when they all appeared

to be clear. They were then put back in the nest, and the Merganser continued sitting on them.

A second Merganser was also seen going into another tree-box, and began to lay round eggs which were nearly twice the size of the previous bird's eggs, and it was anticipated that they might be fertile. About ten days or a fortnight later the first Merganser was found to be off her nest, and some of the eggs were tested in warm water, and a few of them proved obviously alive. A good bantam was selected and the eggs placed under her. In about five or six days' time four Mergansers were hatching, but one died in the shell. One of the three died soon after birth, leaving two.

The countryside had been scoured for maggots, and it was only just before the Mergansers were hatched that the maggots arrived. The two Mergansers were put with two Mandarins and two bantam chicks with one good bantam hen. The maggots were fed to the little birds, on a clean paint brush and they made successful attempts in taking the maggot off the brush, provided the brush was held over their heads. It was noticed that they were going to the bantam's head and trying to get something from her beak. It occurred to the writer that possibly these little Mergansers are fed by the mother for quite a period of time at birth.

Clean pieces of brown paper were placed on the floor, and maggots were scattered over them. The bantam chick soon started to show what should be done, the Mandarins then followed. In five days' time the Mergansers did not require feeding any longer with a brush, they were picking up the maggots from the brown paper.

A further effort was made, and maggots were raised from dead fish. The Mergansers did not seem to make any demur in eating them, and in the early stages of their life they had quite a number of maggots produced from fish and also maggots from meat. Further precaution was taken in that the maggots which came from the meat were put into fish meal and sand so that when eating them the birds also got fish meal and sand. Quite a lot of sand was eaten by the Mergansers in this way. The birds proved to be very tame and would come when called.

At the same time that this was happening some green eggs were found in the boxes, and carefully set on one side. These proved to be Goldeneye, and four Goldeneye were hatched. Two were found dead in the shell and one died later. The three Goldeneye were soon put with the Mergansers, and they must have eaten many pounds of maggots between them. A pint of maggots seemed to disappear in a few days. They also very much enjoyed bread-and-milk and fish meal, and are now eating ordinary pellets and corn as well. The two Mergansers are now six months old and are in the main lake with their parents.

To revert to the second lot of large eggs which were laid, these proved to be mainly infertile, though some fertile eggs did not mature.

It has been suggested to the writer that this is the first time that Hooded Mergansers have been hatched in Europe. I do not know whether this is so or not.

If anybody wishes to see them it is quite easy to inspect the birds, because they will come up when called, and they appear to be in splendid health.

* * *

UNUSUAL DIET OF AN EIDER DUCK

By J. O. D'EATH, (Hadley, Herts., England)

For upwards of ten years now, a small colony of Eiders (*Somateria mollissima*) has been one of the outstanding features of the large waterfowl collection here (*Avicult. Mag.*, vol. 64, no. 6, pp. 169-173). There are now five breeding pairs which normally lay two clutches of eggs. Last year sixteen young Eiders were reared from our own eggs. In accordance with my usual practice a young pair was retained for the purpose of illustrating to visitors the plumage transition between first, second and third year drakes; the male bird of course only reaching full adult plumage in its third year.

It has been customary to operate several traps for Sparrows (*Passer domesticus*) at the main feeding point in the collection as these pests consume a large quantity of grain throughout the year. Normally these Sparrows are dispatched and are left at the foot of a tree pending final disposal.

During the hard weather after Christmas 1962 the waterfowl keeper noticed the dead sparrows were disappearing from time to time. This was reported to me and an attempt was made to solve the mystery. It was naturally assumed that some form of predator was at work. Careful observation was then kept and to my astonishment a young Eider drake was seen to leave the water, cross the island, seize a dead sparrow and return to the water with it.

On reaching the water, the Eider proceeded to immerse the sparrow several times and then deftly swallow it head first. Its appetite apparently not sated it then repeated the performance again. Subsequently, no attempts were made to encourage this bird's carnivorous tendencies but at fairly regular intervals it helped itself to dead sparrows.

On 6th August, I was inspecting the collection and drew the attention of the waterfowl keeper to a pair of Moorhens (*Gallinula chloropus*) and instructed him to eliminate them as soon as possible. It is, of course,

generally known that these birds must be treated as vermin in well-managed waterfowl collections owing to their predeliction for duck eggs. At that moment three newly hatched Moorhen chicks were seen making for an overhanging oak tree. The Eider drake already referred to was with the main group of Eiders in the centre of the pond about twenty-five yards distant. It immediately detached itself and swam vigorously towards the Moorhen chicks. On reaching them it seized one and swam away again, all the time vigorously shaking the unfortunate victim. Having done this for about two minutes it promptly swallowed the chick. Without further ado the Eider repeated its tactics but this time it was subject to frenzied attacks by the two parent Moorhens. These were of no avail and in spite of the second chick submerging, the Eider doing likewise, it eventually suffered the same fate as its predecessor.

The occurrences recorded above may give food for thought to students of bird behaviour.

In my long experience with waterfowl I have never encountered carnivorous tendencies in the family *Anatidae*.

However, the drake Eider, the subject of this note, will serve a useful purpose in the control of one form of vermin, but at the same time a watch will have to be kept to see that its tastes do not extend to the young ducklings of rare species.

* * *

NEW EFFORTS IN BREEDING THE GREAT BUSTARD

(*Otis tarda* L.)

By WOLFGANG GEWALT (Scientific assistant at the
Berlin Zoo (West Germany))

It seems that up to now there has never been a success in breeding the Great Bustard in captivity. Only Quintin (see also Moody) once reported in this MAGAZINE about a fertile egg laid in his enclosure. But the chick which was hatched soon died. Althammer's report about the alleged breeding of the Great Bustard deserves no attention because of apparently false statements.

I have studied these birds very thoroughly for more than twelve years. I have reared a considerable number of Great Bustards from eggs found in the wild and some of these birds are still alive after more than ten years in captivity. The hens mature at four and the cocks at five to six years of age.

When I took up my post at the Berlin Zoo (West) I removed my small flock of Great Bustards there too, but unfortunately in doing so I lost my nearly mature Bustard cock. Luckily Director Dr. Klös

succeeded in importing a new three-year-old cock as well as a further hen. In 1961 all twenty-five eggs laid were infertile, but during the 1962 breeding season at least four eggs proved fertile. In one egg the embryo unfortunately perished shortly before hatching, but after a period of incubation of between twenty-two and twenty-five days the three others resulted in three apparently vigorous chicks. Their weight was a little less than that of chicks hatched in the wild, and in spite of most attentive care it was impossible to keep them alive more than five days.

So though success was not quite achieved a good beginning apparently seems to have been made and we hope that the results in the next breeding season will be still better.

REFERENCES

- ALTHAMMER, M. L. (1861). Note sur des essais de domestication de la grande outarde. *Bull. Soc. imp. Acclim.*, 8.
- GEWALT, W. *Die Großen Trappen*, 1954.
- Über Wachstumsstörungen und einen Fall vermutlicher Perosis bei der Aufzucht eines Großtrappenhahns (*Otis tarda* L.). *Zool. Garten* (NF), 24, 1958.
- Die Großtrappe. *Neue Brehmbücherei*, Nr. 223, 1959.
- Neue Beiträge zur Brutbiologie der Großtrappe (*Otis t. tarda* L.). *Beitr. z. Vogelkunde/Stubbe-Festheft* (i. Druck), 1962.
- MOODY, A. F. *Water-fowl and Game-birds in Captivity*, 1932.
- QUINTIN, W. H. St. The Great Bustard. *Avicult. Mag.* (New Series), vol. 2, 1904.

* * *

A NESTING OF THE KEY-WEST QUAIL DOVE : THIRD REPORT

By PROFESSOR CARL NAETHER (Encino, California)

Since the time of my last, the second, report on the nesting of a pair of Key-West Quail or Golden Doves (*Geotrygon chrysia*) which species I have not had the satisfaction of keeping and studying before, these sleek, handsome birds have been very busy indeed. Their repeated laying of cream-coloured eggs and their subsequent practice of covering them over with fresh nesting materials, which brought no tangible results of any kind, annoyed me. I therefore resorted to the stratagem, at times quite effective with captive wild doves and pigeons, of changing their environment : I simply transferred them to another pen, where again they had the company of small softbills, but no other doves.

It was but three days following this transfer that I found the male sitting in an open-top box far back in the shelter, flitting his wing-tips and calling to his mate almost the whole day long. Since the nest-site was large enough to permit both, male and female, to "indulge" in their old habit of sitting at times side by side during incubation, each one on one egg, which habit I wanted very much to discourage, I placed

an enamel bowl in the box which was just big enough to accommodate one bird at a sitting, and which was readily accepted. However, when during incubation the time came for the male to take over, about 9.30 in the morning, his mate refused to leave the nest, with the result that both birds sat for over an hour—the hen on the eggs and the cock on the hen !

At any rate, this clutch of eggs was not in any way spoiled by sporadic incubation or by being wholly covered with nesting material, as were numerous previous settings. The eggs hatched promptly, approximately within thirteen days from the time they were laid. The black-billed youngsters, almost of equal size, were fed so well by both parents that they grew rapidly. At times, the male parent would feed both squabs simultaneously, his throat being hardly wide enough to accommodate *both* youngsters' beaks. When the squabs were ten days old and quite well feathered, their parents stopped brooding them. This gave me an opportunity to look them over daily and to make sure that they were getting sufficient food. They were approaching the critical time in their lives when some species of foreign doves will stop feeding their young and start another nest. Only once did I find the youngsters' crops to be empty. Moreover, one squab had dropped to the floor of the pen, probably because it was hungry. This caused me some concern, since I wanted very much to raise "my first" Key-West Quail Doves. After I had put the youngster back into the nest, I examined the various seed dishes, only one of which was empty—the one usually filled with shelled sunflower seed, which seed these doves like best of all. Quickly I refilled the container, and it was but a short while before the old birds ate their fill of it. When, several hours later, I had another look at the squabs, both of which were still in the nest, their protruding crops were well filled and they sat contentedly side by side, not minding my close approach at all.

At the age of fifteen days, both youngsters flew off the nest, to which they did not return at any time thereafter. In contrast to their parents, they were quite shy, almost wild, often flying vigorously against the wire-netting of the pen at my approach. This behaviour prompted their parents to sound "whirring" notes at short intervals until I left their pen. In fact, since having produced young, the old pair is much more "circumspect" than ever before: whereas formerly they tolerated my close approach to their nest without protest, now they are always on the alert when I enter their pen, eyeing me suspiciously and steadily until I leave.

The young grew to independence in a month's time and were removed to a separate pen at six weeks of age. They are still (instinctively) wild, and fearful of my person, though peaceful with other ground doves. They are a sturdy pair, both coloured alike, the one slightly smaller than his nest-mate. They look at first glance much like young

common Bronze-wings, and they also act very much like them. Perhaps their most distinctive mark is the white stripe running from the beak to the ear-coverts. On leaving the nest, these doves were a light brown all over, an excellent protective colouring in dry, grassy regions. Gradually, their backs and wings are assuming a deep-reddish colour, which in mature specimens no doubt accounts for the species being called also the "Golden Dove". Their heads are light brown and their lower parts greyish-white. Their plumage shows as yet only traces of the metallic green and purple, which colours lend this species its unique beauty. Very much on the alert, the young Key-West Quail Doves are strong, swift flyers. Now fully raised, they give every appearance of maturing into a handsome pair.

Coming back to the behaviour of the old pair, it should be noted that since its transfer to new quarters, the birds stopped the practice of more or less continuous nest-building after laying eggs. Once the eggs were laid, they were incubated in regular and natural fashion. But these birds still indulge in the habit of not leaving the nest promptly at change-over time, that is, the hen will remain on it long after this time is past, with her mate trying to push his way in to the nest determinedly. I have known Mountain Witches to behave similarly, but only at hatching time and shortly thereafter. I have never known domestic pigeons to act in this manner at any time. What factors prompt this very strong attachment by this pair of Key-West Quail Doves to their nest, regardless of whether it contains eggs or young, I am unable to say.

At this writing (16th August), the pair is nesting again, having chosen a covered hanging box with open front for its site. It fronts toward the east and gets the benefit of almost daily morning sunshine, but the sitting dove faces the solid wall of the box, toward the west. In due time, I hope to report further behaviour of this particular pair.

*

*

*

NEWS FROM CHESTER ZOO

By A. W. E. FLETCHER

Sixteen Golden and Silver Pheasants have been reared and are now three to four months old. One Monal or Impeyan Pheasant has also been reared but as the cocks do not start coming into colour until they are a year old, we do not yet know whether it is a male or a female. Our adult female laid three eggs, one of which was broken and the other two were set under a bantam. One egg disappeared during incubation, and the young one is the sole survivor.

These birds live in the Himalayan range in North India and are rarely found below 5,000 feet. They are entirely hardy as far as cold is concerned, but cannot stand prolonged conditions of damp. As can be imagined from the shape of the beak, a great deal of their food is obtained by digging, and although they will take wheat and seed, it should be supplemented with live food and chopped roots such as carrot.

Of the Parrot family we have reared in addition to Fischer's Lovebirds, Cockatiels, and a Ring-necked Parrakeet, two nice young Pennant's Parrakeets and a young Scaly-breasted Lorikeet.

Some interesting hybrid breeding has also taken place, a blue Masked/Fischer's Lovebird and a Barraband's/Crimson-winged Parrakeet. There is the possibility of one or two more arrivals in the parrot family, but as they are still only noises in nest-boxes at the time when these notes are written, we will not record their arrival just yet.

Another interesting success has been the Zosterops in the Tropical House. A number of these neat little birds share the large planted area of the Tropical House with Hummingbirds and a small mixed collection of Waxbills, to say nothing of a Pigmy Hippo and several Giant Tortoises. Six or seven nests have been built by the Zosterops, and at least two fledglings have been observed out of the nest. There may well be several more, as the problem of stock-taking such active creatures in a mass of tropical vegetation is well nigh impossible.

A pair of Imperial Fruit Pigeons are sitting on their fourth egg. The first was clear, the second produced a squab which died within twenty-four hours, due we think, to the hen being frightened off the nest at night by a cat or owl; the third egg was deserted, and now we are hoping fourth time lucky.

Picazuro Pigeons have lost several clutches but are now on another one and numbers of Barbary and Ring-necked Doves have been bred.

For the British bird enthusiast, three young Blackbirds were hatched and reared, and a pair of Choughs on deposit had eggs, but lost them. The culprit is thought to have been a Steller's Jay.

Waterfowl have been disappointing. Large numbers of our resident

free-flying Mallard have been hatched, and twenty or thirty reared. Six hybrid diving ducklings are growing well, but although our Baikal Teal were seen to pair, no nest or eggs were found, and the Black Swans, though a true pair, made no attempt to build. They did, however, go through courtship displays, and as they are a young pair, we have great hopes for next year.

Near misses include the King Parrakeets, which sat well for three weeks and then deserted in a thunderstorm, the Humboldt Penguins, which were robbed, and the Sarus Cranes which mated and became very aggressive but went no further. The Flamingos are nest building, but it is too late to hope for results.

Interesting new arrivals since my last notes are an Occipital Blue Pie, presented by T. L. S. Dooly, an additional Sarus Crane which made a forced landing on an R.A.F. aerodrome and held up air traffic for two hours before capture, and a Giant Whydah.

* * *

LONDON ZOO NOTES

By J. J. YEALLAND

Six species (marked with asterisks) new to the collection are among the birds received in recent weeks. Another two are not as yet identified with certainty.

One of these is a juvenile *Bubo* found in the Amani Forest of north-eastern Tanganyika and sent by the Director of the Malaria Institute at Amani. The bird had evidently just left the nest when found early in May and it is believed to be *Bubo vosseleri*, the Nduk Eagle Owl, first described by Reichenow in 1908 from a specimen collected in the Amani Forest. The juvenile plumage has not been described. This specimen is of approximately the size of *Bubo poensis*, Fraser's Eagle-Owl, and the two were formerly considered to be conspecific, but *poensis* is not, of course, in this area.

Another and more difficult puzzle arrived in the form of three white herons with dull greenish legs and pale yellowish feet and these are believed to be *Demigretta sacra*, the Reef Heron, which, of course has a white and grey phase. These came from Dr. Searle in Hong Kong who also sent two Edwards' Lorikeets (*Trichoglossus haematod capistratus*).

Two Spur-winged Plovers* (*Hoplopterus spinosus*) arrived from Kenya together with two Lily Trotters (*Actophilornis africanus*), two Crowned Lapwings (*Stephanibyx coronatus*), a D'Arnaud's Barbet* (*Trachyphonus darnaudi darnaudi*) and two juvenile Red-billed Oxpeckers* (*Buphagus erythrorhynchus*).

A Vieillot's Barbet* (*Lybius vieilloti rubescens*) collected in Sierra Leone by Mr. R. Shingler was presented by Messrs. G. H. and J. R. Newmark who also gave a Pretty Warbling Finch* (*Poospiza ornata*).

A Black-billed Thrush* (*Turdus ignobilis*) was presented by Mr. R. A. Richardson and among other interesting additions are a Black Kite, a Hooded Vulture, a Buff-winged Trumpeter (*Psophia crepitans napensis*), an Abyssinian Eagle-Owl and a Long-eared Owl.

Among birds bred in the Gardens are four Upland or Magellan Geese, two Turquoise Parrakeets and a Princess of Wales' Parrakeet. Sarus Cranes whose first clutch was infertile are incubating a second. Masked Jay Thrushes nested, but none of the eggs hatched.

* * *

BRITISH AVICULTURISTS' CLUB

The seventy-eighth meeting of the Club was held at the Windsor Hotel, Lancaster Gate, London, W.2, on Monday, 10th September, 1962, following a dinner at 7 p.m.

Chairman : Mr. K. A. Norris.

Members of the Club : Miss P. Barclay-Smith, P. S. Bates, A. W. Bolton, Miss K. Bonner, Lt.-Col. H. W. Clayden, Miss R. Ezra, Dr. R. Gottlieb, J. Hancock, L. W. Hill, Miss R. Hill, Dr. E. Hindle, F. E. B. Johnson, Miss E. M. Knobel, F. Mosford, S. Murray, W. R. Partridge, A. A. Prestwich, B. E. Robinson, R. C. J. Sawyer, E. O. Squire, P. Sutton, Mrs. P. V. Upton.

Members of the Club, 23 ; guests, 7 ; total, 30.

Miss Rosemary Hill showed colour films to illustrate "A glimpse of Kenya and of 'Birdland'".

The date of the next meeting is Monday, **12th November, 1962.**

ARTHUR A. PRESTWICH,
Hon. Secretary.

* * *

BLUE-HEADED WAXBILL

As described in the last number of the MAGAZINE, Derek Goodwin has bred the Blue-headed Waxbill *Uraeginthus cyanocephalus*. It is believed that this may be a first success.

Any member or reader knowing of a previous breeding of this species in Great Britain or Northern Ireland is requested to communicate at once with the Hon. Secretary.

NEWS AND VIEWS

The Bronze Medal of the Avicultural Society of South Australia has been awarded to R. W. McKechnie, for the first breeding of the Pheasant-tailed Cuckoo Dove *Macropygia phasianella*, and of the Ruddy Shelduck *Tadorna ferruginea*.

* * *

Breeding reports. N. Nicholson, Peale's Parrot Finch ; bred on possibly only one previous occasion—London Zoo, 1912, two reared. W. R. Partridge, five Pileated Parrakeets. R. A. Richardson, Indian White-eyes at liberty have a nest of three young ones, four to five days old. J. S. Rigge, Red and Blue Macaw, two young a month old and growing well. Lloyd B. Thompson, British Columbia, Prince Lucien's Conure, in three breeding seasons the female has laid eighteen eggs and reared eighteen young.

* * *

The past breeding season must generally have been one of the worst for many years. For Mrs. K. M. Scamell, however, 1962 will surely be memorable as a year of great success. Not only is she able to report three possible "firsts"—Pied Bush Chat *Saxicola caprata*, Rubythroat *Calliope calliope*, and Himalayan Rubythroat *Calliope pectoralis*, but the pair of Blue-headed Rock Thrushes *Monticola cinchoryncha* which achieved a first breeding in 1960, has successfully reared broods of three and four.

* * *

Walther Langberg, Copenhagen, reports that he has successfully bred three young Pearl-throated Mannikins *Odontospiza caniceps*. This is possibly a world "first".

Some of the parrakeets have bred very well this year. Six pairs of Crimson-winged have reared twenty-three young between them ; and up to the end of August there were twenty-nine young Splendids flying. A pair of Grey Parrots has two young ones ; and Peale's, Red-headed and Blue-faced Parrot Finches have all done well.

* * *

A. W. E. Fletcher, Curator of Birds, Zoological Gardens, Chester, writes : " We have only one Crimson-winged Parrakeet in the collection, and more for companionship than anything else I put her into an aviary with two odd Barraband's cocks and a Barnard's cock. The first young Barraband's—Crimson-winged hybrid left the nest yesterday (18th July). It is all green, light below and dark above and is in perfect feather."

This is a quite unusual cross and I believe the only previous young

one was bred in the Duke of Bedford's aviaries in 1939. Its upbringing was curious. A clutch of eggs was "put under a broody bantam which damaged most of them, including one fertile one, but succeeded in hatching another". An attempt was made to hand-rear this young one but, after a day or so, as it did not appear to be doing as well as it should, it was given to an unmated hen Amboina King Parrakeet that had a nest of eggs. She proved an excellent foster-mother and successfully reared her charge. (*Avicult. Mag.*, 1939, p. 398.)

* * *

B. E. Robinson, writing at the end of June, reports: "I have had a reasonably good season so far. Adelaides, Pennants, Yellow Rosellas, Mealies, Stanleys, Bauers, Princess of Wales, Blue-wings, Elegants and Turquoisines have young, though only the Turquoisines and Elegants have left their nests as yet. I also have young from an Adelaide cock paired to a Yellow Rosella hen. Last year this pair had two young which looked very much the same as young Adelaides. Unfortunately neither of them survived the winter. Some young Swainson's and Scaly-breasted Lorikeets are flying.

The cock of one pair of Many-coloured with young feigned injury whenever anyone went near the nest. He would fall to the ground, take two or three steps with wings out-stretched and fall onto his beak. If that did not succeed he would keep repeating the act until one went away, when he 'recovered' rapidly. I have never seen a parrakeet do this before and wondered whether any of our members has seen or heard of anything similar."

* * *

Dr. R. E. B. Brown, Newcastle, N.S.W., who has been so very successful in breeding Bleeding-heart Pigeons—fifty-three young reared from his original male and two females—says he finds them nearly as easy to breed as domestic pigeons, provided a few necessary precautions are taken. (i) They must *never* be frightened on the nest—if they are they never return. (ii) A diet rich in protein is essential. They are highly insectivorous and will greedily eat white ants, mealworms, crickets, grasshoppers (if not too large), and any smooth-skinned grubs, such as silkworms. The diet supplied by Dr. Brown consists of wheat, milo (a sorghum-like seed), millet, soft food and hard-boiled egg. Every day they are given a ration of fresh, raw minced steak of which they are very fond. White ants and mealworms are given daily, also any other available insects. They are very fond of paw-paw seeds, also apple and pear seeds. Bleeding-hearts do very much better in a planted aviary—they are not at ease in sheds and tend to desert their eggs there. The best nest receptacle is a wire fern basket placed in a tree—they readily occupy these.

Dr. Brown says : " They breed all the year round in this climate which is very like that of southern California—except that we do not have the fog they have there. They do not stop at all, even when moulting. I would like to separate them for three months in the year but if I do it takes at least six months to pair them up again." Incidentally, Dr. Brown hopes to be in England next summer and looks forward to seeing some aviaries.

A. A. P.

* * *

CORRESPONDENCE

BREEDING AUSTRALIAN BLUE WRENS

I would like to congratulate the Boehm aviaries in New Jersey on the successful breeding of Australian Fairy Blue Wrens. This is an outstanding achievement. I kept some years ago but never had them nesting.

At this same time I would like to say that I have repeatedly reared the Kiskadea Flycatcher during 1928–1932.

ALEX ISENBERG.

451 PORTOLA ROAD,
PORTOLA VALLEY,
CALIFORNIA, U.S.A.

UNUSUAL SIZED CLUTCH OF RED-BREASTED GOOSE

I wonder if it would be of interest to inquire through the medium of the MAGAZINE if anyone has exceeded an unusual sized clutch and rearing of the Red-breasted Goose. This season my Red-breasted Goose laid nine eggs in *one clutch* all of which have hatched. Six under Bantams and three with the parents. The goslings are now two weeks old and barring accidents should all reach maturity.

J. M. HAY (Major).

EDINGLASSIE,
GLASS, HUNTLY,
ABERDEENSHIRE.

SHELDUCK BREEDING IN CAPTIVITY

My husband and I are searching for information on Shelduck breeding in captivity as part of a general study on their breeding biology, and are anxious to obtain the following information:

The age at which Shelduck (*Tadorna tadorna*) come into breeding condition is not known with certainty, either in wild or captive birds. My husband and I are gathering information on this subject and we would be extremely interested to hear from bird-keepers on any of the following aspects of this matter :

- (a) Any case of a one-year-old bird laying : either fertile or infertile eggs ;
- (b) The age at which pairs of equal age have raised broods ;
- (c) The ages at which pairs of unequal age have raised broods.

Any other information relevant to the age at which Shelduck first breed in captivity would be of interest.

N. J. HORI (Mrs.).

FIELD HOUSE,
CLAPPER LANE,
STAPLEHURST, KENT.

SPECIAL BIRD FOODS



FAMOUS
SINCE
1823

Universal (Pictorial Packet)	Fortifier	Perfort	Insectivorous (Red Packet)	Fort-Egg and Colorfort
3 oz. 1/10½	3 oz. 2/-	3 oz. 2/-	3 oz. 3/-	3 oz. 2/3
1 lb. 3/6	1 lb. 4/-	1 lb. 4/-	1 lb. 6/-	1 lb. 4/6
3½ lb. 11/9	3½ lb. 13/6	3½ lb. 13/6	3½ lb. 21/-	3½ lb. 15/-
7 lb. 22/9	7 lb. 26/6	7 lb. 26/6	7 lb. 38/8	7 lb. 29/9
28 lb. 85/-	28 lb. 98/-	28 lb. 98/-	28 lb. 154/-	28 lb. 112/-

HEALTH GRAINS

C.L.O. Rearing and Condition Food (Condition Seed)

3 oz. 1/-	3 oz. 1/-
1 lb. 2/-	1 lb. 4/6
3½ lb. 5/6	3½ lb. 15/6
7 lb. 10/6	7 lb. 30/-

"GREENSTUFF"

A dehydrated form of green food consisting of lettuce, spinach, carrot, etc., readily taken by all birds. Packets 1/- & 3/6, also sold in bulk.

When sending for above Birdfoods please add for part cost of postage :
 ½ lb. pkts. 6d. 1 lb. pkts. 1/- 3½ lb. and 7 lb. 2/- 28 lb. and over Carriage Paid.

MEALWORMS

"MARBA" DUTCH BRED (small type)

"SANTA GERMAN BRED" (large type)

Whether you prefer the small Dutch mealworm or the larger German type, we can give you the finest service obtainable, with shipments arriving twice weekly. Dispatch guaranteed same day as orders received.

1 oz. 3/-	2 oz. 4/9	4 oz. 8/-	8 oz. 14/-	1 lb. 23/6
Also in original Boxes as imported Nett weight guaranteed				
2 lb. 45/-	3½ lb. 62/6	6½ lb. £6 0s. 0d.	All Carriage Paid.	

MAGGOTS

We sell only the best liver-fed maggots, specially recleaned and ready for immediate use for bird feeding. Packed in bran. No mess or smell.

2 oz. 3/4	4 oz. 4/6	8 oz. 7/-	1 lb. 10/6
-----------	-----------	-----------	------------

FEEDING SUNDRIES

	½ lb.	1 lb.
Dried Flies (Chinese)	5/-	9/6
Silkworm pupae (Whole)	3/9	6/6
" (Ground)	4/-	6/9
Dried Dragonfly larvae	6/6	12/6
Dried Shrimp (Fine, Medium, or Coarse)	2/3	3/6
Ant Eggs	13/6	25/-
Pure Dried Egg	6/6	12/6
Dried Rowan Berries (Whole)	2/9	4/6
" (Crushed)	3/-	4/9
Pure Breadcrumbs (Fine, Medium, or Coarse), far superior to biscuit meal	2 lb. 3/- ; 4 lb. 5/6 ; 14 lb. 17/6 ; 28 lb. 28/-	
"Egg-crumbs," guaranteed to consist of 90 per cent breadcrumbs and 10 per cent pure egg	2 lb. 5/6 ; 4 lb. 10/6 ; 7 lb. 17/6	

ALL ABOVE PRICES ARE POST PAID

E. W. COOMBS, LTD.

255 Walderslade Road, Chatham, Kent

Phone : Chatham 61068

Grams : Avicult, Chatham, Kent

Special Offer

The Birds of Tropical West Africa

by

D. A. BANNERMAN

Vol. 7

Devoted entirely to the Weaver-birds (family Ploceidae) including Fire-finches, Mannikins, Waxbills, Whydahs, etc. Comprising over 400 pages with 14 fine coloured plates, roy. 8vo, buckram, 1949

Price: £2 2s. post free

from WHELDON & WESLEY, LTD.,
CODICOTE, HITCHIN, HERTS.

An absolute international novelty

For **simple respiratory acariasis**
and that that is associated to
the most common complications.



CANDIO - ACAR

International Patent

for all cage birds and for pigeons.

"**CANDIO ACAR**," has been tested, approved
and been adopted by the RESEARCH CENTER
FOR BIRD'S DESEASES (C.R.M.U.) of the
University of Parma, controlled by
Prof. ITALO VACCARI.

ISTITUTO CANDIOLI s. p. a.

Veterinary Section - Turin, Italy - Founded in 1882.

SOLE AGENTS are needed for our free zones.

When Visiting the

COTSWOLDS

AVICULTURISTS ARE WELCOME

TO

“BIRDLAND”

*Set in the charm of an
old English Garden at
the lovely Village of*

BOURTON-ON-THE-WATER

KILLS ALL MITE & LICE INSTANTLY!

*Just
spray birds
DIRECT in
the cages*

- NON-POISONOUS
- NON-IRRITANT
- ECONOMICAL



*From all
seed
dealers*

Johnson's **'ANTI-MITE'**

AEROSOL SPRAY 2/7 · 4/8 · 9/9

STUDIES ON GREAT CRESTED GREBES

By
K. E. L. SIMMONS

Price 5/6 post free



PUBLISHED BY
THE AVICULTURAL SOCIETY
GALLEY'S WOOD
EDENBRIDGE, KENT

CANDIDATES FOR ELECTION

- ALAN W. U. BOWLEY, P.O. Box 70, Kitwe, Northern Rhodesia. Proposed by Miss K. Bonner.
- DAVID W. DUNHAM, Laboratory of Ornithology, Cornell University, Ithaca, New York, U.S.A. Proposed by Professor W. C. Dilger.
- PENTLAND HICK, Flamingo Park Zoo, Kirby Misperton Hall, Nr. Malton, Yorks. Proposed by P. H. Maxwell.
- ROGER HOUPERT, Saint Martial-de-Valette, Par Nontron, Dordogne, France. Proposed by R. D. Chancellor.
- HARTLEY KING, 11 Sleight Street, St. James, Western Australia. Proposed by A. A. Prestwich.
- J. M. B. KING, Brook House, Lower Street, Rode, Nr. Bath, Somerset. Proposed by D. H. S. Risdon.
- PETER MAKIN, The Old House, Kingsclere, Newbury, Berks. Proposed by Miss K. Bonner.
- KENNETH G. OGDEN, 150 Broom Road, Rotherham, Yorks. Proposed by R. T. Kyme.
- RICHARD M. RAINES, 541 East 53rd Street, Savannah, Georgia, U.S.A. Proposed by Otis Wade.
- WOLFGANG ROHR, Scientific Assistant, Berlin Zoo, Budapest Str. 36, Berlin W 30, Germany. Proposed by Dr. Heinz S. Raethel.
- HENRY SANDERS, JR., St. Louis Zoological Park, Forest Park, St. Louis 10, Mo., U.S.A. Proposed by G. Vierheller.
- HARRY SCOTT, 15 Second Avenue, Mabelreign, Salisbury, Southern Rhodesia. Proposed by I. S. Turner.
- RODMAN L. TIDRICK, Lincoln Park Zoological Gardens, Chicago 14, Illinois, U.S.A. Proposed by W. B. Frostick.

NEW MEMBERS

The seventeen Candidates for Election in the July–August, 1962, number of the AVICULTURAL MAGAZINE were duly elected members of the Society.

CHANGE OF NAME AND STYLE

MISS ROSEMARY HILL, to Mrs. John Williams.

READMITTED

H. SMYTH, 56 Morris Street, St. Mary's, New South Wales, Australia.

CHANGES OF ADDRESS

- Lieut.-Col. J. M. BROCKBANK, to British Army Staff, British Embassy, Washington, D.C., U.S.A.
- A. B. CLAYCOMB, to 101 Leverich Street, Moore, Oklahoma, U.S.A.
- Mrs. M. D. ESSON, to 2 Rock Close, Broomsands Road, Nr. Paignton, South Devon.
- Dr. ROBERT W. FICKEN, to University of Maryland, Department of Zoology, College Park, Maryland, U.S.A.
- J. M. FORSHAW, to Flat 13, Block 5, Condamine Court, Turner, A.C.T., Australia.
- ROBERT J. GREGORY, to 41 Leslie Street, Woodville, South Australia.
- R. I. HARRISON, to 8 Westside, Marton-in-Cleveland, Middlesbrough.
- KEITH HOLDSWORTH, to Highgate Inn, High Street, Tunstall, Stoke-on-Trent.
- PETER M. MACROW, to Box 4, Crafers, South Australia.
- The Reverend NEVILLE MORTON, to 53 Pennell Street, Lincoln.
- R. MARLIN PERKINS, to Director, St. Louis Zoological Gardens, St. Louis 10, Missouri, U.S.A.
- Dr. DANAI SANIDVONGS, to 14 Harrington Gardens, London, S.W.7.
- H. THOMAS, to 28 Hawthornden Avenue, Uttoxeter, Staffs.
- G. F. TOWNSEND, to 29 Latimer Road, Hill Dene, Cinderford, Glos.

DONATIONS
(Coloured Plate Fund)

	£	s.	d.
Dr. O. W. Haffke . . .		15	0
E. J. McC. Johnston . . .		8	0
H. A. Mitchell . . .		10	0
G. H. McKain . . .		5	0
J. A. W. Perry . . .		5	0
Dr. B. E. Potter . . .		5	0

MEMBERS' ADVERTISEMENTS

The charge for Members' advertisements is THREEPENCE PER WORD. Payment must accompany the advertisement, which must be sent on or before the 15th of the month to A. A. PRESTWICH, GALLEY'S WOOD, EDENBRIDGE, KENT. All members of the Society are entitled to use this column, but the Council reserves the right to refuse any advertisements they consider unsuitable.

For Indian Birds buy direct from Baidyanath Acooli, 8/5a Barrackpore Trunk Road, Calcutta 2, India.

For Sale, AVICULTURAL MAGAZINE, 1948, 1956-1961, in parts ; also odd copies 1914-1919 and 1948, £3 10s. :—W. G. Glass, 25 Olympia Hill, Morpeth, Northumberland.

98, 20542
94
birds

KS
Wing Bird

AVICULTURAL MAGAZINE



CONTENTS

	PAGE
Breeding the Red-legged Water-Rail (<i>with plate</i>), by CHARLES EVERITT	179
Jay-Thrushes and Acorns, by K. E. L. SIMMONS	182
Observations on Rufous-chinned Jay-Thrushes (<i>Garrulax rufogularis</i>), by C. J. O. HARRISON	188
Keeping and Breeding Peale's Parrot Finches (<i>Erythrura pealii</i>), by N. NICHOLSON	197
The Parrots of Australia : (3) The Red-backed Parrot (<i>Psephotus haematonotus</i>) (<i>with plates</i>), by JOSEPH M. FORSHAW	199
Feeding of a Java Finch (<i>Padda oryzivora</i>) by a Domesticated Canary (<i>Serinus canarius</i>), by DAVID W. DUNHAM	208
More Adventures with Liberty White-eyes, by R. A. NICHOLSON	209
Breeding the Blue Sugar Bird (<i>Dacnis cayana</i>), by E. NORGAARD OLESON	211
London Zoo Notes, by J. J. YEALLAND	212
News and Views	213
Reviews	214

THE AVICULTURAL SOCIETY

Founded 1894

President : D. Seth-Smith, Esq.

Hon. Secretary and Treasurer : A. A. Prestwich, Galley's Wood,
Edenbridge, Kent.

Assistant Secretary : Miss Kay Bonner.

Membership Subscription is £1 per annum, due on 1st January each year, and payable in advance. Life Membership £15. Subscriptions, Change of Address, Names of Candidates for Membership, etc., should be sent to the Hon. Secretary.

THE AVICULTURAL SOCIETY OF AMERICA

Hon. President : Mr. Jean Delacour.

President : Mr. Paul Schneider.

Secretary : Mr. Otis Wade, 1806 Redesdale Avenue, Los Angeles 26, Calif.
U.S.A.

The annual dues of the Society are \$4.00 per year, payable in advance. The Society year begins 1st January, but new members may be admitted at any time. Members receive a monthly bulletin. Correspondence regarding membership, etc., should be directed to the Secretary.

THE AVICULTURAL MAGAZINE

The Magazine is published bi-monthly, and sent free to all members of the Avicultural Society. Members joining at any time during the year are entitled to the back numbers for the current year on the payment of subscription. All matter for publication in the Magazine should be addressed to :—

The Editor : Miss Phyllis Barclay-Smith, 51 Warwick Avenue, London,
W. 9. Telephone : Cunningham 3006.

The price of the Magazine to non-members is 7s. 6d., post free, per copy, or £2 5s. for the year. Orders for the Magazine, extra copies and back numbers (from 1917) should be sent to the publishers, Stephen Austin & Sons, Ltd., Caxton Hill, Ware Road, Hertford, England. Telephone : Hertford 2352/3/4.



AVICULTURAL MAGAZINE

THE JOURNAL OF THE AVICULTURAL SOCIETY

Vol. 68.—No. 6.—All rights reserved.

NOVEMBER-DECEMBER, 1962

BREEDING THE RED-LEGGED WATER-RAIL

By CHARLES EVERITT (Trenton, N.J., U.S.A.)

In October 1961, a consignment of birds received by Mr. Edward Marshall Boehm from South America included five Red-legged Water-Rails—(*Ortygops notata*)—which were released into one of the new planted aviaries that had been erected on rising ground to the rear of the ornamental waterfowl lake. There being no visual way of sexing the birds, coloured leg bands were placed on each, first to facilitate the making of the daily check carried out on all birds and, secondly, in the event of their going to nest, to be able to determine the sexes.

They are a small species of rail being only some 6 inches in height and are often referred to as Waterhens. The head and neck are a rich chestnut-brown, the back, wings, and tail being chocolate coloured. The throat, abdomen, and under tail-coverts are white and there is black and white barring on the flanks. The eye has a red iris with a deep brown pupil and legs are red. The upper mandible is black except at the lower portion of the base which is yellow, the colour of the lower mandible. Above the upper mandible, towards the base, there is a dark, scar-like incrustation, the remains of the "egg tooth".

It was observed that, although they kept to the ground for the better part of the time, they were also very adept at climbing about in the various hemlock trees in the aviary. For the benefit of some Kurrucane Thrushes occupying the same aviary, nest-baskets had been fixed at varying levels in these trees. However, the thrushes spurned them, as is recorded in the separate report on their breeding, but the rails took possession of one located about 3 feet above ground level. Nest-building commenced on 10th April, but they played around at it for some six weeks leading us to surmise that they might all be of the same sex. Finally, on 24th May, there was one plain white egg in the nest followed the next day by a second. They were rather large for the size of the bird being 27 by 20 mm.

During the day, only one bird was seen to be sitting and it is presumed that it was the female although still no difference could be detected amongst the three of them. As evening approached, however, another rail joined the bird in the nest, the third member of the species taking

up a roosting position on a nearby branch. As it was the same two birds that tended the eggs throughout, they have been designated as the parents, the one sitting during the day being recorded as the female. The periods of incubation was twenty-four days and apparently began with the laying of the first egg for one hatched on 18th June, and the other on the 19th. The female had appeared to have deserted the second egg on the hatching of the first but, since it did hatch, this could not have been the case.

Being of the nidifugous class of birds, the nestlings were covered with fluffy feathering, black in colour and they vacated the nest within two hours of hatching, following wherever their parents led them. It was feared that the first one had been lost, either by escaping through the $\frac{3}{4}$ -inch mesh wiring or by some other foul means. It could not be seen anywhere but, as the parents were fussing around, it was assumed it was safe and was hiding in the ground-ivy covering the greater part of the aviary. Nevertheless, as a safeguard, the outside wiring was covered with Visqueen to a height of about 12 inches up from the ground.

With the arrival of the second chick it was decided to confine the family to a specific area in the aviary. First a $\frac{1}{2}$ -inch wire compound was constructed and placed at the selected site. As it had been seen that number one chick returned to the nest the first night, this same nest was transferred to a low bush that had been fenced in by the wire enclosure. Now came the tricky part of the operation, the catching of the chicks. At one moment they could be seen but, at the slightest movement by one of us, they froze where they were and virtually disappeared. Fortunately there was a bird-house situated at the far end of the aviary, close to their original nesting site, so it was thought that if the door was opened it might be possible to manoeuvre the entire family into the corridor running the length of the house. After about an hour of encircling movement the parents were finally induced to go in, clucking all the time, and were soon followed by their offspring. It was now but a matter of seconds to net them and transfer them to their new quarters. The opportunity was taken at this time to have a good look at the young birds and it was observed that they were completely black, even their legs, with the exception of the white "egg tooth" on the top of their upper mandible. This subsequently subsided until it was only visible as the black "scar" previously mentioned during the description of the adult birds.

From the time they left the nest, the chicks picked up for themselves the parents selecting the appropriate tit-bits and showing the young birds what to do with them. They were kept in confinement for about fourteen days by which time it was felt that they had grown to a size when they could not be mistaken for a dainty morsel by one of the larger birds occupying the same aviary. Actually there were some twenty-six other birds with them including Ross's Touracos, Meve's

and Amethyst Starlings, Kurrucane Thrushes, Black-headed Orioles, Fairy Bluebirds, Bell Birds and some Tanagers and Sunbirds. Immediately the family was given its freedom, the third adult rail joined forces with the parents and helped in shepherding the young birds around. In the evenings it was noticed that all three adults and the young birds returned to the same nest but, after about four days of this, they must have felt a little crowded for one of the young birds deserted its parents and joined number three adult in another nest in an adjacent tree.

It was not until they were about twenty-four days old that feathers began to show but, from then on, it was only a matter of a further two weeks before they were fully feathered. Their upper plumage was dark brown, the lower parts being grey and the legs remaining black. The chestnut colouring first began to show on their heads when they were about seven weeks old, the underparts having taken on a lighter shade by that time. Now they are over three months old and, although slightly smaller than their parents, it is by their leg bands that they are most easily recognized. Time alone will show what their sexes are and it is intended to leave all five birds together in the hope that one of the young birds will eventually be suited as a mate for the original number three adult.

The normal feed of the adult birds consists of the soft-food mixture we prepare for all birds in general, together with ground raw beef-heart. Apart from the insects and grubs they forage for themselves and the regular issues of live-food made throughout the day, they have not been seen to partake of anything else although there is seed, grain, and mixed fruits available at all times. Whilst in their compound the young birds did have their soft-food mixture supplemented by an additional quantity of hard-boiled egg but this, plus small mealworms and gentles, was all that was given them. Once they were released into the open aviary they carried on with exactly the same feed given to the adult birds.

So far as I have been able to ascertain, it appears that this breeding of the Red-legged Water-Rail by Mr. Boehm is the first time this species has been bred in captivity in a private collection. Any further information on this point would be appreciated.

JAY-THRUSHES AND ACORNS

By K. E. L. SIMMONS (Ascension Island)

(Illustrations by Robert Gillmor)

In the autumn of 1960, I bought a pair of Rufous-chinned Jay-Thrushes (*Garrulax rufogularis*) and installed them in an outdoor flight, 17 feet long. I was told by their previous owner that these babblers would hammer open peanut-husks and bury the nuts. I prepared the flight by covering most of the ground surface with leaf-mould and litter in which I scattered peanuts and sunflower seeds. The birds were very tame and settled down immediately, soon exploring their new home and uncovering the buried items. They split open the sunflower seed-cases and broke up the already shelled peanuts with a few hearty blows of the bill. No burying behaviour was noted, however. During the next weeks, I provided as great a variety of autumn fruits and berries as I could find to see what the birds liked, but it was not until early in October that I fortuitously gave them some acorns, never suspecting that these birds were specialist acorn-eaters.

On 3rd October, I threw six large acorns on to the leaf-mould. The birds were immediately interested and dropped to the ground almost colliding in their eagerness. Both pecked at an acorn, moving it around on the ground until it was at a suitable angle to pick up endways. They then hopped about the floor of the aviary, each bird dropping its acorn every now and then and briefly banging at it vigorously with the bill before moving on. They appeared to be searching for firmer ground on which to attack their acorns and finally each bird, having tested several spots, settled down to deal with its acorn, placing it on the ground just in front and dealing it hard blows, swinging up the head and bringing down the bill like a pickaxe. If the acorn became spiked on the end of the bill, the babbler would remove it if firmly wedged by deliberately raising one foot and pushing the acorn off. I had seen signs of this movement before when the birds were opening sunflower seeds, but had not grasped its significance. Not only had these birds special movements for fracturing hard seeds, but they were also equipped with special movements for freeing the bill if necessary—a wonderful and unique adaptation.

One bird ("A") soon ceased banging though the other ("B") persisted a little longer, but then also stopped to watch "A" which was now burying its acorn. It hid it in the leaf-mould, driving it into the ground with blows of the bill and covering over the spot with dead leaves. "B" retrieved the acorn immediately and started banging at it, soon fracturing the outer shell and swallowing fragments of the nut. After this, the birds caused my wife and I much amusement by burying and recovering the acorn each in turn a number of times.

The Jay-Thrushes were given more acorns the following day but they were more intent on burying them than eating them this time. "A", however, dug up an acorn buried by "B" and worked well on it. On the day after, there were several hollowed-out shells on the litter and, on many occasions subsequently, I noted that when I supplied sunflower seeds, peanuts or acorns in number the birds usually hid all that were in view and uncovered and ate them later at their leisure. No systematic observations on hiding and recovering were made, however, as my main work with these birds had to do with their anting-behaviour. I gave them stale acorns throughout the following winter and spring, getting the impression that their storing behaviour declined, though whether this was seasonal or due to the inadequacy of the acorns or of the surroundings I do not know. When I periodically cleared the leaf-mould of rubbish or renewed it, I found that all buried items had been recovered.



Only acorns and similar hard foods were hidden—not insects, fruits or the food-mixture so far as I know. The birds were less keen on most fruits than on nuts and the like. Large sweet-chestnuts proved too tough for them to open so these were given cut in two, the half-shells soon being hollowed out. Peanut-husks were dealt with like acorns, the birds extracting the nuts through a large central hole or through one knocked into both or one end. Each peanut was then buried or broken up in the usual way and large pieces swallowed. I never saw peanuts hidden in the husk. On the other hand, sunflower seeds were buried only in the case. They were opened with a few blows and the seed usually swallowed whole. Of fruit, apples were the favourite, given partly peeled and spiked on a branch, the birds poking their bills into them and eating the pieces. Plums, also partly skinned, were

eaten on the floor ; but here the Jay-Thrushes used an adaptation of the acorn-freeing movement, driving their bills into the flesh then quickly stepping on the fruit and withdrawing the bill. Blackberries were also taken to the ground and each separate seed nodule pecked off, the birds sometimes grasping the whole fruit in the foot while doing so, though they used the foot while feeding far less frequently than the smaller babblers, for example the Pekin Robin (*Leiothrix lutea*) and, especially, the Blue-winged Siva (*Siva cyanuroptera*). Similarly insects, of which the birds were very fond, were usually eaten without being held down in the foot or any other preparation. Mealworms were given daily throughout the year. When available, as much live food as possible was provided, including ants (for tests on anting) and pupae. The birds even liked earwigs and the tamer of the two, " B ", would wait for the aviary doors to be opened and pounce on any earwigs that had been hiding between door and frame. This bird would accompany me when I cleared up the floor of the flight, seizing any insect uncovered or forced to move. It would wait expectantly for me to turn over some large stones placed especially to provide shelter for insects and centipedes. Ground-beetles, including foul-smelling species, were eagerly sought out, as were the centipedes. The same bird would also accept incapacitated worker bees and wasps from me, but these would be " worried " on the ground for some time before being swallowed, pecked and dabbled there until a small crater was formed in the soft earth. Similar treatment was given to the occasional hibernating newt that I found. Worms and slugs were seldom touched.

The following autumn I again gave the birds fresh acorns to check up on the details of the behaviour patterns involved in breaking, eating and burying. On 5th October they had their first quantity of the season and, although they did some banging, their chief concern was to bury the acorns. " A ", however, successfully split one and both birds ate some of this, " B " also uncovering, banging and reburying an acorn first hidden by its companion. The following details emerge from the total observations :—

Carrying.—The acorn was held in the tips of the mandibles, usually by the broad, blunt end, occasionally by the more pointed end. When taking acorns to the burying area, the Jay-Thrushes would sometimes fly, though they preferred to proceed along the ground, bounding with great hops, body hunched, giving low conversational calls.

Burying.—The bird, holding the acorn in its beak, would ram it more or less vertically into the soft ground, usually point first, and then hammer it further in until it was firmly fixed below the surface of the ground. These hammering actions were somewhat similar to the splitting ones, but were performed in a quicker succession and without the exaggerated head-swing, the purpose being to knock the acorn in

and not to break it. The bird aimed repeatedly at the same spot, usually the scar on the broader end. If the acorn entered the ground on a slant, the bird usually slanted its blows also ; occasionally it then struck the side of the acorn and drove it in horizontally not vertically. Sometimes acorns were merely pushed into very soft earth and covered immediately, without any hammering. Fragments of acorn were sometimes buried after splitting.

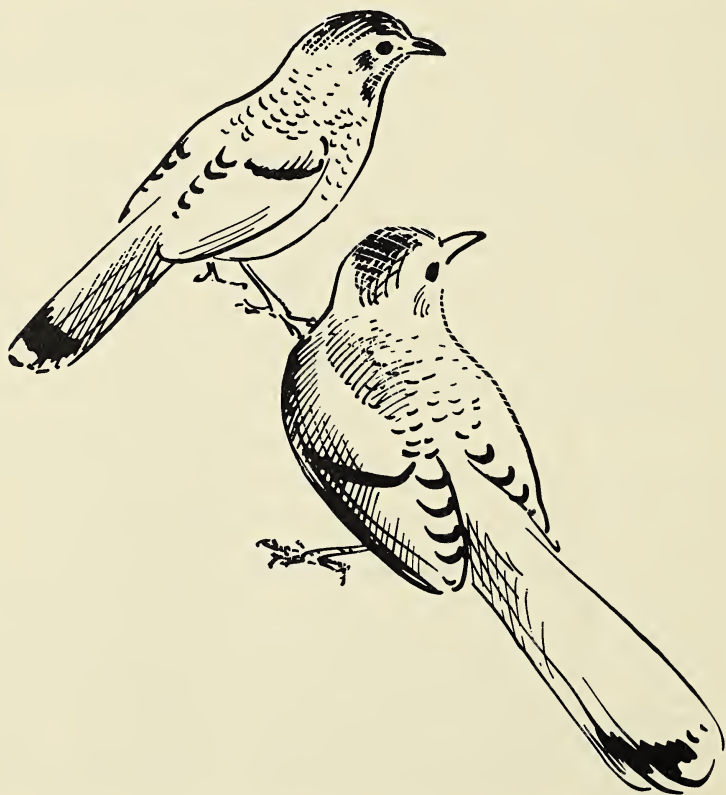
Covering.—As soon as the acorn was buried to the bird's satisfaction, it would often pick up a leaf straight away and place it in the hole, sometimes hopping some distance from the spot to secure one. With partly opened bill it would also pick up bits of earth, a leaf, a small twig, a pine-needle or whatever suitable items were available and place these separately and deliberately on top of the acorn, sometimes hammering again a few times during the collecting session. In addition, the bird would poke at the sides of the hole and cause a small collapse of the earthen walls on top of the acorn. Finally, earth and debris were often raked in over the burying spot with side to side hoeing movements of the bill, and perhaps a final leaf added.

Uncovering.—This was the least studied activity. The bird would go to the burying spot and, with side to side flicking movements of the bill, uncover the acorn, seize it and carry it away. Each Jay-Thrush probably remembered its own burying spots and those of its companion within the confines of the small aviary.

Splitting and eating.—For splitting, the acorn would be placed on its side on a firm or fairly firm surface, preferably ground with a thin covering of friable earth or the like on top so that the acorn did not shoot about when struck. Completely bare, hard ground was not favoured and the birds did not use small slabs of concrete or rocks that were available. "B" regularly took its acorn to the flat, wooden base-struts of the aviary where these were covered with earth or leaf-mould. The bird would prepare for splitting by standing in front of the acorn with its legs well apart. The fracturing blows of the bill were delivered with the whole power of the body, the Jay-Thrush swinging its head, neck and forepart of the body upwards and then downwards, often with a flick of the closed wings, the bill remaining in line with the acorn throughout, mandibles slightly open. This bill action was not a continuous, woodpecker-like hammering but a series of deliberate, individual blows aimed at the same spot in the centre of one side of the acorn. If the acorn was knocked out of position, the bird would re-align it with open mandibles in a special way, tucking its bill down obliquely to grasp the far side of the acorn, mandibles inverted with maxilla underneath the acorn, and turning it round with a straightening of the head. The movement resembled that used by certain birds in rolling an egg back into the nest except that the open beak was used. If necessary, these turning actions were repeated.

When a hole appeared in the shell, the bird continued its pickaxing, but now each blow was terminated with a twisting movement of the bill. Small cores of nut would be forced between the slightly open mandibles at each blow, and fragments were also detached and swallowed. Sometimes, the acorn would then be hollowed out bit by bit ; at others, larger pieces would get detached and be separately broken up and eaten.

Bill-freeing.—When the acorn became impaled on the Jay-Thrushes' beak before it was fully holed, the bird sometimes left it there and continued with the fracturing blows, the acorn often coming free on the next impact. More often, however, the special foot-stepping, bill-freeing movements were used to detach the acorn, especially during the time of eating. The bird would raise one foot and push down on the acorn, which was held close to the ground, at the same time grasping the acorn firmly with the toes and withdrawing the bill with a twisting movement of the head. All this happened very quickly and the Jay-Thrush would soon be banging away again. Sometimes, when not too firmly attached, an acorn was removed with a mere shake of the head.



That at least some of the movements described above are not confined to this one species of Jay-Thrush was confirmed by John Yealland and Derek Goodwin after the observations on *Garrulax rufogularis*. They separately gave acorns to birds at the London Zoo and recorded the acorn-splitting and bill-freeing techniques from a number of other species of *Garrulax*. Storer (1960) has drawn attention to the striking adaptive radiation of the babblers (Timaliidae) on the continental land-mass of southern Asia where the "many more or less isolated mountain chains have provided 'insular' conditions under which the babblers, most of them weak fliers, have radiated into a remarkably varied assemblage". He points out and illustrates the striking divergence in bill form. With reference to the Jay-Thrushes of the genus *Garrulax* (as delimited by Delacour (1946) presumably), with their rather stout, jay-like bills, Storer remarks that, like the true jays (Corvidae), "they feed on a great variety of insects, fruits and seeds." As the present account shows, this similarity between Jay and Jay-Thrush is even greater, for both are specialist acorn eaters and hoarders though differing in their methods.

The behaviour of the Common Jay (*Garrulus glandarius*) in relation to acorns has been described in detail by Goodwin (1951) and may be taken as typical of most jays. It uses different techniques from the Rufous-chinned Jay-Thrush in opening and eating acorns, but buries them in a somewhat similar manner. Its method of harvesting is probably more efficient for, whereas the Jay-Thrush, presumably, takes fallen acorns only from below the tree, one at a time, and buries them near by, the Jay takes green acorns directly from the tree itself, a number at a time, and flies away with them to its own individual burying areas. Such a difference in method of collecting would ensure that Jay and Jay-Thrush compete little for the available acorn supply in regions where both occur. Little, however, is known about the behaviour of any of the Jay-Thrushes in the wild, though their social habits make it likely that parties of these birds wander from place to place burying surplus acorns and later work back over the same ground to recover them. Like Jays, Jay-Thrushes must help to spread the oak by failing to detect all the buried acorns. Turček (cited by van Tyne and Berger 1959) has shown with the aid of a map the close correspondence between the range of the Common Jay and the distribution of oaks; it would be most instructive to plot the range of the Jay-Thrushes of the genus *Garrulax* in the same way.

Records of acorn-eating and related behaviour in as many species of *Garrulax* and other large babblers are urgently needed and aviculturists are in an especially good position to provide information of this kind and on the birds' general food preferences. My own impression is that the Jay-Thrushes may be specialist feeders in more than one

way. Not only do they eat acorns, which are too hard for most passerines to tackle and distasteful to many, but they also take a variety of insects and other invertebrates that are avoided by many other species on account of their peculiar taste, weapons or warning colouration.

REFERENCES

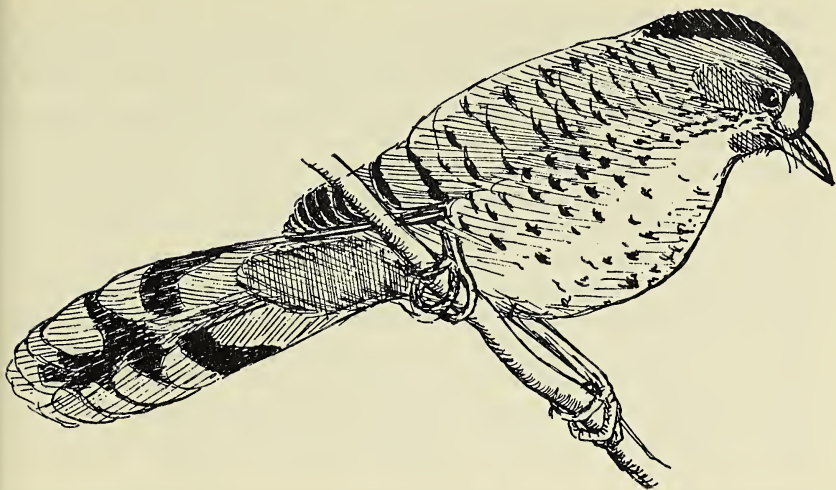
- DELACOUR, J., 1946. Les timaliines, *Oiseau*, 16, 7-36.
 GOODWIN, D., 1951. Some aspects of the behaviour of the jay *Garrulus glandarius*. *Ibis*, 93, 414-442, 602-625.
 STORER, R. W., 1960. Adaptive radiation in birds. In *Marshall Biology and comparative physiology of birds*, 1, 15-55. New York.
 VAN TYNE, J. and BERGER, A. J., 1959. *Fundamentals of ornithology*. New York and London.

* * *

OBSERVATIONS ON RUFIOUS-CHINNED JAY-THRUSHES (*Garrulus rufogularis*)

By C. J. O. HARRISON (Perivale, Middlesex, England)

When K. E. L. Simmons went to Ascension Island he very kindly gave me the two Rufous-chinned Jay-Thrushes (*Garrulus rufogularis*) which he had bought the year before. They are one of the smaller Jay-Thrush species, about the size of a Song Thrush but with the rather big-headed appearance that Jay-Thrushes have and the rather weak-looking hind-quarters due to the very short wings. They are a warm brown colour heavily marked with small black crescentic bars on the feather tips, the tail is a more reddish brown and is graduated, with an orange band across the feather tips separated from the brown by a black subterminal bar. These two bars are more conspicuous on the pale underside of the tail. The underside is grey, paling to white on throat, mid-breast, and belly, with a caroty-orange patch on the throat and a larger area of the same colour on the under tail-coverts. There are black speckling, formed by dark feather tips, over much of the underside. A black line formed by covert tips separates off the dark flight feathers which are narrowly edged with silver, and the brown, black-tipped secondaries have a tiny silver line along the tip. The head is basically brown with a broad black stripe running from the bill, over the crown. Between eye and bill is a white spot that fades over the eyebrow into the brown of the head, giving the bird a permanent air of slight surprise. The ear-coverts are orange. The two birds are almost exactly alike save that one has less bold black tips on the body feathers and the white loreal spots are slightly tinged with brown.



This individual is much bolder and tamer of the two and from subsequent observation is suspected to be a cock, in spite of duller colouration, while the brighter, shyer bird is a hen.

GENERAL BEHAVIOUR

Their characteristic posture on the ground is a rather hunched one that suggests a thrush that is beginning to feel the cold. They hold themselves much closer to the ground than any thrush and progress by strong springy hops. This greater flexure and strength of the legs seems to be a conspicuous character of the Jay-Thrushes, and to a lesser extent of all the babblers. They spend a lot of time turning over the ground or dead leaves with sideways movements of the bill, following no particular rhythm of movement. If disturbed while feeding like this they remain quite still and silent, and against bare branches, or a background of dead leaves or earth they seem to disappear entirely. Time and time again, when suddenly entering the aviary shelter, I have had to stop and search for them, to reassure myself that they really are squatting silently there. When feeding like this, undisturbed, they keep up a series of low contact notes, a continual flow of soft faint plangent, churring, or quietly interrogative notes, like a small fussy conversation. It is not possible to isolate particular notes as having a special function, but one can recognize the general difference in tone that gives a wide variety of expression—from the more voluble excitement when there is something new or unusual to be seen or investigated, to the tiny soft twangy note uttered when they are disturbed when clumped side by side on a roost perch at night, a noise so faint that one can only trace the source by the very slight movement of the tail tip at each utterance.

They fly little, and only if they must. The short wings, stopping before the upper tail-coverts, with the primaries almost completely hidden by the folded secondaries, play little part in their movement. Instead they move from point to point with great bounding springs of their strong legs. In such movement the body is horizontal and the head extended forwards. The tail is in line with the body and swung to one side or the other to maintain balance, and the wings are often twisted to one side or the other. On several occasions people who have seen the birds in such a posture have spoken of a "dropped wing" not realizing that the shifting of wings and tail to one side or another were all part of a movement that enables them to twist and side-slip through a mass of twigs in a beautiful smooth movement more suggestive of a rodent than a bird. Their strong grip aids them in this and I have seen a bird lean so far forward on a perch, craning its head well below it to peer at something, that it looked as though it should have fallen off long before.



They roost, and rest, clumped close together, side by side on a perch. Sometimes they preen one another, the preened bird twisting its head into all sorts of odd attitudes to facilitate the process. They bathe in the babbler fashion. The bird perches on the edge of the water bowl, then in a single movement it hops in, crouches fluttering its wings furiously and abruptly and raising a momentary fountain of water; and then equally abruptly it leaps out onto a branch and shakes itself. It may return to repeat the process a number of times before it is satisfied, but it only stays in the water for a brief moment and never squats for a prolonged bathe in the way that finches or thrushes do. A Pekin Robin (*Leiothrix lutea*) that I also had from K. E. L. Simmons

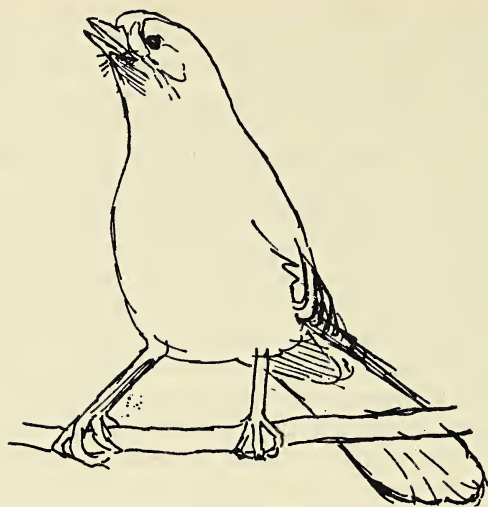
was even briefer in its immersion and raised an even higher spray with the violence of its flutters. I could stand in the house and tell by the height of the fountain of droplets that shot up from the bowl in the aviary away down the garden which species was now enjoying a bathe.

I found that they spent most of the day in the shelter shed, and apart from emerging to investigate anything that happened within the vicinity of the aviary they were only out for any length of time at dawn and dusk. Since the shed has windows round the upper half and is enclosed and darker at roof and floor level, and furnished with twiggy branches, it may have appeared to them as a substitute forest. Since the shrubby apple tree in the aviary flight has recovered from the attention of a pair of Greenfinches that stripped off every bud this spring, and has produced a thick mass of twigs, they have taken to resting at times in the thickest and leafiest parts of this cover. When in the shed they often rest by day on a perch near the floor but usually chose a high perch for roosting. During nesting, however, they rested on a low perch, possibly because this was farthest from the nest which was in an upper corner of the shed.

EXCITEMENT AND AGGRESSION

Excitement posturing was evident when the birds were first introduced into the shed and later in their early exploratory excursions into the flight, but since then it has become infrequent. It is assumed apparently without cause, on some occasions when the birds first emerge from roosting in the early morning. It is also elicited by the sight of anything very unusual, or when the birds are recovering from a scare. It is accompanied by very characteristic calling. This begins, at low intensity, as a babbling noisy version of the usual contact conversation. It becomes a loud throaty bubbling with the introduction of many harsh nasal notes, and sounds, from a little distance, like a small flock of excited quarrelling Starlings. As excitement increases "reek" notes are introduced. These are abrupt high-pitched screeching notes reminiscent of those of a startled Blackbird. With greater excitement these become more frequent and louder. When I first heard it I hurried out hoping to discover the sex of the bird concerned, but found that both of them were contributing an equal share to it.

In the posture that accompanies it the bird turns a little to one side and perches with the body drawn up and head and neck stretched upwards and forwards with the bill a little raised. The tail is held to the opposite side. The bird performs a rapid combined pivoting and ducking movement, bringing the head down low as it turns and then throwing it up as it completes the swing of the body, at the same time swinging the tail across with a vigorous jerky movement. This jerky side to side swing may be accompanied, in moments of more intense



excitement, by wing-flicking. It brings into prominence the conspicuously coloured region of the throat and the tail-tip. At low intensity the calls may be uttered without obvious posturing of this type.

Actual aggression I saw only once. For a time the birds shared the aviary with a Common Starling (*Sturnus vulgaris*). This latter bird would not come down to feed while I was in the shed, but immediately I left it would descend and drive the other birds off in order to take what it wanted. One day it did so while I was present, driving the Jay-Thrushes away from some mealworms that I had just put in. The cock Jay-Thrush began to utter a continuous low nasal churring and at the same time inflated its plumage, erecting the contour feathers of head and body so that both appeared nearly twice as big. The thick soft feathering presented an unbroken outline and the dense rump feathers gave it a hump-backed appearance. The tail was spread, the black and orange banding at the tip becoming very conspicuous. It was drawn up tall, appearing very long-legged, and in this posture it hopped slowly towards the Starling with a slight lateral pivoting of the body, and finally grappled with it.

I saw this posture again when I had occasion to catch the hen Pekin Robin that was with them in the aviary. It had been with them most of the time without incident, but they were nesting and had become much more intolerant of its presence, especially near the nest. I caught the Pekin Robin in a net and as I took it out it uttered a series of long-drawn squeals. Immediately both Jay-Thrushes responded by adopting the aggressive posture and uttering the call that accompanies it. The hen showed a much less intense version than the cock. I could not be

sure if they were reacting towards the Pekin Robin or whether this represented the general reaction of a social species when another bird was caught by a predator. Certainly when I fed them two minutes afterwards they did not react towards me in any abnormal manner or show fear.

On one occasion I showed them a stuffed Long-eared Owl, putting it just inside the door of their part of the shelter shed. At first they kept well away from it, on the upper perches. They began uttering conversational calls that changed quickly into excitement calling. At the same time they began to move closer to the owl with rather jerky movements, flicking the partly-spread tail from side to side. The calling became louder and the "reek" notes were drawn out into high-pitched rattling calls uttered with the bill open. Their reaction appeared to be typical mobbing behaviour and one had the impression that they would have swooped at the owl if there had been a perch beyond it that they could have moved to.

VOCABULARY

I have already described the calls associated with normal contact behaviour, and with excitement or aggression. In view of the relatively small size of the aviary, a 6 by 4 feet shelter and a 7 by 7 feet flight, the birds were not able to move very far from one another and hence it was difficult to detect special contact calls. Once, when one bird was being fed in the flight and the other was out of sight in the shed, the bird at the food uttered a single soft "chuk" call and the other immediately appeared and joined it. This might have been pure coincidence. On a number of occasions one bird, out in the flight, would be heard to utter a long-drawn harsh nasal note with a complaining tone. This note is rather subdued but can be heard for a surprising distance. I suspect that I have only heard it uttered at low intensity, and that if uttered loudly it would be heard a long way off. Observations on other species of Jay-Thrush at the London Zoo have shown that most of them possess a Distance Contact Call, usually a single or double note, which enables them to keep in touch with other individuals at some distance. I suspect that the call which I have heard from the aviary may be a low-intensity version of the Distance Contact Call of the Rufous-throated Jay-Thrush.

FOOD

Simmons has given detailed information on this subject and I have only a few comments to add. When I put in millet and hemp seeds for the Greenfinches I found that the Jay-Thrushes were taking small quantities of both, particularly the latter. I found their indifference to earthworms surprising, though I suspected them of occasionally

taking small ones, but they pounced avidly on any leather-jackets. It was difficult to be sure what was a genuine recognition of food and what was mere curiosity. I put in nasturtium leaves, inverted to reveal a mass of blackfly, and immediately the Jay-Thrushes began picking them delicately off the leaves, but in a day or two they ignored them. Similarly they would eat an occasional woodlouse, but when offered a quantity of them they appeared to show little real interest. Moths they took eagerly and would perform wild leaps and acrobatics in an attempt to seize them in mid air.

NESTING

I had high hopes when a nest was built and an egg laid, but two attempts came to nothing, apparently because of lack of co-operation from the supposed cock. Although there is little evidence of display in these species some of the Jay-Thrushes at the Zoo had been observed courtship feeding, the cock feeding the hen while she quivered her wings. This behaviour was also accompanied by a certain amount of feather erection. The absence of any behaviour of this type suggested to me that the birds that I had might not be ready for nesting. I still cannot be absolutely sure of the sexes, although I am pretty certain that only one bird laid the two eggs that were produced.

I watched for any signs of nesting intention but saw nothing apart from a piece of fibre being momentarily picked up by one bird on one occasion. Having seen some of the Zoo Jay-Thrushes squat in odd corners and arrange any material that they could find in front of them I decided to experiment. On 8th April I took a large bunch of leafy privet twigs and wove in other twigs to form a firm base on which I put dead iris leaves and short lengths of string, as this was the only nesting material that I could find. I fixed this in a top corner of the shed, above window level. Immediately both birds were up to investigate it. They approached cautiously with plumage sleeked, but hopped straight onto it, squatted in turn, and arranged the dead leaves and string around them. During the next day or two one or other of the birds would be on it, arranging it and keeping up a soft low conversation as they do when excited by anything. I rarely saw both together at the nest. They seemed uninterested in dead leaves and plant material thrown into the flight, but watching them I found that they spent some time tugging at an old piece of unravelled string hanging on the apple tree in the flight. Simmons had seen the nest of this species in the British Museum collection and had told me that it was made almost entirely of creeper stems. Published accounts also confirmed this habit.

Obviously string reminded them in some way of creeper. I therefore offered them string of varying thickness and coarseness, smooth or unravelled, at various intervals over the next few days. I found

that it would only be examined if it was in the branches, hairy or fluffy string being rejected with a characteristic jerk of the head, sometimes followed by bill-wiping. It would appear that, like the Senegal Waxbills I had kept, (antea. vol. 62, p. 128) material was carefully selected and anything that could not be freely held was distasteful. String was jerked vigorously. Immediately it came away it was dropped. If it did not come it was ignored after repeated tugs. It would appear that to fulfil the collecting and carrying stimulus the material had to be suspended or entangled in branches, it had to be relatively thin, and tough enough to require tugging, but finally to break. Under natural conditions anything that came away immediately, or was on the ground, was probably rotten and unsuitable for nesting material.

I tried to tie up bunches of string so that a length would come away after a series of tugs, and achieved success in that a single piece was carried to the nest, but that was all. I then tried adding small handfuls to the side of the nest each time I visited the shed. It was material that would not stimulate the birds to collect and carry it, but once it was by the nest it became a part of the nest-material and the bird that came to the nest would arrange it and incorporate it in the structure. I was able to see how the nest was firmly fixed to the surrounding twigs during the early stages of building. Any long loose end would be seized in the bill by the bird sitting on the nest. The head and neck would then be stretched out and the end of the material pushed outwards and downwards over one of the twigs. The bird would then release it, draw its head back, and reach under the twig, seizing the end, pulling it in firmly, and pushing it into the side of the nest. In this way the outer nest was bound firmly to the twigs surrounding it. By 13th April there was a rudimentary string structure about as big as a Blackbird's nest. Only one bird would be at the nest at one time, but both took turns at building it. They roosted low, well away from it.

On 13th April I noticed a mass of dead convovulus stems on a wire fence near my home and next day offered the birds a quantity of these, which I tangled among the twigs of the aviary branches so that the birds would have to tug them in order to obtain pieces. The birds showed immediate interest and began to take it. Only the finer thinner stems were used, but by midday on 15th April the nest had a well-shaped inner cup of these thin stems about 1 inch thick, with a cavity about 4 inches across and 2 to $2\frac{1}{2}$ inches deep. Some of the stems had been woven round supports in the manner described. The birds ignored any stems that fell to the ground, but showed renewed interest in them when I re-entangled them in the branches. On 18th April I gave more stems and the cup was consolidated, any loose ends that stuck up being pulled down and tucked into the lining, giving the cup a series of rounded edges that suggested basketwork. On 19th and 20th April they began collecting very fine pieces of dried grass and plant

fibre from the ground, two or three at a time. I tried offering various materials, not being sure what the nest-lining should be like. Various wools were rejected and so were feathers. White hairs from a reindeer skin were also ignored. What they appeared to require was something fine and tough, light in colour and a few inches long, which was to be found at ground level. Rootlets would appear to be the natural material.

I offered a mixed collection of dead grasses. They rejected the tougher stems and broad blades, but took any thin fine pieces. Both cock and hen were at the grass together while I was present. The hen picked up a little, but would not take it to the nest while I was there. The cock collected a few pieces in his bill then carried them up to the nest by a series of short hops, using various routes. He kept his head well raised while doing so and had the head and body feathers slightly fluffed. He hopped into the nest, placed what he was carrying down in the cup in front of him and pushed it down while still standing. Then he suddenly squatted low in the nest with bill and tail showing horizontally at the edges of the cup, and made a series of vigorous wriggling movements downwards and sideways, shaping the nest. He did so quite openly, ignoring spectators. Mr. W. Murray gave me the remains of a tanager's nest of the previous year from his aviary. It was composed of rootlets, and when I shredded it and gave it to the Jay-Thrushes they immediately collected the material and lined the nest with it.

The nest was complete by 24th. I could go near it, but if I put my hand toward or near it the hen would immediately look up, utter a soft call, and go to the nest, but otherwise showed neither alarm nor anger. By 26th April she was displaying more interest in the nest and spending a lot of time standing, but not sitting, on it. The cock seemed to show little interest now. On 28th April the hen spent much time in the afternoon and evening sitting on the nest, and at 9.30 a.m. on 30th April there was a single egg in the nest. It was a typical egg, glossy white, but rather more conical than the eggs of the species in the British Museum collection. This was to be the complete clutch, although it is stated to be usually two and occasionally three or four.

The next week was a worrying time. The hen sat and roosted on the nest but was off for long periods of the day and the egg was frequently cold. I suspected that the cock should be sitting also but was not doing so. On 5th May I took the egg away. It was cold and appeared sterile. I broke up the old nest and removed it, putting up a new site in a different corner of the shed. The hen showed an immediate interest in this and the cock a moderate one, but they did not immediately start to rebuild. By 7th May a small cup composed entirely of convovulus stems was being built on the old site. In the absence of the base I had made it was pushed deeply down between some

twigs with nothing below the base of it, but bound, as the previous nest had been, to surrounding twigs. This suggested a more natural site and a reason for the binding of the nest to the twigs. Insufficient rootlets were available, but, having some idea what the birds were looking for, I cut coarse sisal string into 6 inch lengths and completely unravelled it, strewing single fibres about the aviary floor. The birds eagerly collected these crosswise in the bill and carried up great white moustache loads of them. By the morning of 11th May the nest had a shining white lining, the hen sat for a while in the afternoon, the cock was on the nest at midday next day, and on 13th May, another single egg was laid, similar to the first.

Again only the hen sat, but she was on the nest for most of the time and I had hopes. On the third day she came off in the afternoon and did not go back again. After a few days they destroyed the nest by pulling at it, but made no attempt to build another, or nest again.

* * *

KEEPING AND BREEDING PEALE'S PARROT FINCHES

(*Erythura pealii*)

By N. NICHOLSON (Stockton-on-Tees, Co. Durham, England)

In the early part of 1962 I came into possession of some of these finches, and as very little appears to have been recorded about this species, some notes may be of interest.

The habitat is the Fijian Islands and the predominant colours are scarlet, green and blue, the female being less brilliant. A further guide to sex is that the male utters a drawn-out trilling note and the female just a short note. There is a splendid coloured plate in the AVICULTURAL MAGAZINE, Volume III, Third Series.

At first the birds were very nervous but after experimenting and finding they were very partial to a mealworm, maw seed, and whole groats, these were given as titbits and helped to gain their confidence. The first pair to nest were accommodated in an aviary by themselves. When it was evident they were in breeding condition a nest-box, oblong in shape, half open at the front, was introduced and some shavings put in to give them a start. The male very soon inspected the box and was shortly joined by the female. Both became very excited and the male began displaying, which consists of up, down, and side movements of the head, accompanied by a purring note.

It was quite evident from the reactions of the female that she was interested and within three days a spherical nest, tunnel-shaped, was built by the male and a clutch of four eggs, white in colour, was laid. Although incubation was carried out by both birds the female took the greater share. I cannot record exactly the incubation period, which I estimate was fourteen days, but do know for certain that the young (three) hatched on 14th June, three sturdy young leaving the nest on 6th July. Within a few days they began feeding for themselves.

I was very much surprised to find they had a bluish mask resembling the Three-coloured Parrot Finch (*E. trichroa*). The parents having a scarlet face, one could have anticipated a little reddish colouring in this region, as sometimes happens in young of the Red-headed (*E. psittacea*). The plumage of the wings and back is green, shading to a lighter tone on the breast, beak light horn colour, tipped with black, the gape being ornamented with luminous beads.

During the rearing process the stock mixture of millet and canary was supplemented with soft food, whole groats, spray millet, and soft sweet apple. The birds have good appetites and will sample anything.

Like other members of the family they are very active and one of their characteristics is that they use the claws quite a lot when feeding. If given a dish of groats they will take one in the beak, fly to a perch, transfer to the claw, and dismember. Possibly in the wild state they pluck small fruits and adopt the same procedure. Apart from a powerful beak they have very strong legs and travel about the aviary floor in a series of quick hops. If viewed full face on a perch they remind one of a Red-headed Gouldian Finch. When mated they become very devoted and after a period of intense activity will decide to have a siesta sitting very close to each other. In this position, with their short tails and chubby build, they resemble two miniature parrots.

As for their compatibility, a pair housed in an aviary with a pair of Redheads proved satisfactory, and I quite think they would associate amiably with other small species.

THE PARROTS OF AUSTRALIA

3. THE RED-BACKED PARROT

(or Red-rumped Parrakeet)

By JOSEPH M. FORSHAW (Canberra, Australia)

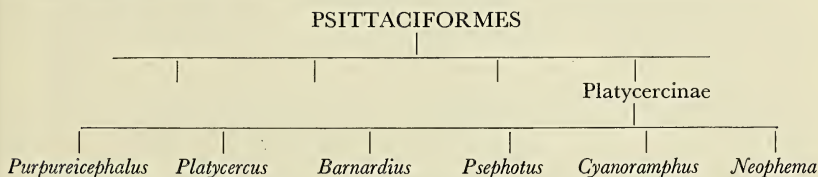
(Continued from Vol. 68, No. 4, page 136)

3. THE RED-BACKED PARROT

(Psephotus haematonotus)

On 26th September, 1837, John Gould presented to the Zoological Society of London two new species of Australian parrots. One of these was the Red-backed Parrot, which he named *Platycercus haematonotus* from the red marking on the rump. On presenting his specimen, Gould stated that he thought it to be intermediate between *Neonanodes* (since incorporated into *Neophema*) and *Platycercus*, but he was placing it in the latter. This quandary was solved by Gould himself when, in 1845, he established the genus *Psephotus*, which has since been enlarged to contain some of Australia's rarest and most beautiful members of Psittaciformes. The Red-backed Parrot thus became established as *Psephotus haematonotus*.

As this is our first meeting with this genus it would be well to establish the connection between it and *Platycercus*, the genus discussed in the preceding papers. Both genera belong to the Platycercinae, the family embracing all the broad-tailed parrots, and are connected thus :



The genus *Lathamus* has been omitted from the above diagram and this will be discussed fully when dealing with the Swift Parrot.

The male Red-backed Parrot is a brilliantly coloured bird exhibiting a general green plumage. An iridescent blue-green is the colour of forehead and cheek patches, becoming duller on the back and wings. Brilliant green is the colour of the crown, nape, and breast. Yellow is found on the abdomen and on the shoulder patches. The wing primaries and secondaries are adorned with ultramarine blue. The lower abdominal and vent areas are white, with a few faint green tinges in old birds. The rump is red, while green is the colour of the upper tail-coverts. The tail feathers are blue-green on the upper surface and white underneath. The female is very distinct and lacks the colours of her mate. A light olive-green is the colour of the head, back, and wings.

The rump, upper tail-coverts, and tail feathers are green, while the under surfaces are white, with a few birds possessing faint yellow markings on the abdomen. Light blue is the colour of the wing primaries, secondaries and shoulder patch. The bill is grey as against black in the male.

Immature birds can be easily sexed on leaving the nest. Young hen birds are similar to the adult hen, but differ in having a yellowish bill. Young males have light blue-green on the face and shoulders, pale yellow abdomens, and a little red on the rump. Gould, when describing the species in 1837 and 1865, makes the surprising statement that immature males lack yellow on the abdomen and red on the rump during their first year. This is not correct. An immature male, taken by the author near Canberra in April, 1962, was exceptional in lacking all colour of the males except the blue-green on the face. Five other immature males, taken from the same flock, possessed both the red rump and yellow abdomen.

Seventeen birds, taken by the author near Canberra and at Bungendore, N.S.W. in April this year, gave the following average measurements :—

					Wingspan, ins.	Total body length, ins.
Mature male	.	.	.	.	14.6	10.2
Mature female	.	.	.	.	14.3	10.1
Immature male	.	.	.	.	14.45	10.1
Immature female	.	.	.	.	14.1	9.9

The interior portion of eastern Australia is the area inhabited by this common species. Two subspecies have been described from within this range.

In 1915 G. Mathews described *Ps. haematonotus virescens* from a specimen taken in South Australia. This race was reported to differ from the typical race in having the head darker green, and the yellow of the abdomen with a more orange tinge. Range was given as South Australia and Victoria. The author took a pair of birds at Morgan, S.A. in February, 1962, and the male was paler in colour than the eastern birds—the exact opposite to what Mathews described. The variations in shades of colouring exhibited by the birds would make it possible to find a male bird fitting the above description from almost anywhere within the range. This subspecies is not valid.

For many years there were reports of a small "blue" parrot in the arid interior of South Australia. In 1941 H. T. Condon described a new subspecies of *Ps. haematonotus* that appeared to answer all these reports and queries. *Psephotus haematonotus caeruleus* is a subspecies inhabiting the interior of South Australia from Lake Eyre basin in the south extending both westwards and northwards. It is readily distinguishable from the typical race by its smaller size and unusual colour.



Distribution of Red-backed Parrot (*Psephotus haematonotus*).

? ?

The boundaries of the area inhabited by *Ps. h. caeruleus* have not been reported.

It is a beautiful bird with the green and blue-green areas replaced by a blue colour which has only slight remnants of green through it. All the plumage is much paler than the typical race and it could be said that this race is a bird with a plumage of soft pastel colours. No reference skins of the female of this race have yet been collected but, through the assistance of Mr. H. T. Condon of the South Australian Museum, the author was able to make a close examination of the two existing male skins collected from Innamincka in South Australia. The colour of this race fulfils expectations considering the arid and semi-desert environmental factors acting upon the development of this sub-species.

Most country people dwelling in the inner areas of the eastern states of Australia are familiar with the flocks of the common Redrump, as *Ps. haematonotus* is widely known. It is a frequent visitor to homesteads

and farm buildings, feeding on the fallen grain around barns, haystacks, and even in fowl pens. The fact that this species spends most of its time on the ground is borne out by the two common names given it by most people—Grass Parrot and Ground Parrot. However, as these names more usually apply to a different genus and a distinct unique species respectively, they should be discouraged for the Red-backed Parrot.

It is found mostly on the ground, over which the flock moves in a manner not unlike a flock of sandpipers on a tidal flat. A flock of these birds feeding under the gum trees provides a scene of intense activity as the individuals dart here and there and undertake short flights of a few feet to the shade of the neighbouring tree. Soon after sunrise the flocks make their way to their usual watering places, such as dams, tanks, irrigation channels, house gutterings, rivers, streams, and even parkland fountains, and then wing their way to their feeding grounds on the plains, by the roadside, near the farmyard, by the haystack or in the stubble of the cereal crop. After feeding has ceased they retire to the upper leafless branches of a suitable gum tree, or to fence wires, where they spend many hours sidling up to one another or, in the latter case, chasing each other from the fence posts keeping up a constant chatter all the time.

The Red-backed Parrot is a bird of the open forest, open plain, or mallee country, but never penetrates into the deep woodland or mountain areas. It is this liking for sparsely timbered grasslands that keeps it west of the mountain ranges away from the coastal areas. It does, however, reach the open forest country of the tablelands and in times of severe drought makes its way to the coastal fringes, many records existing for the western suburbs of Sydney. In the Southern Alps, as far as the author can judge by observations, it seems to be limited to areas below 3,000 feet altitude, slightly lower than that limiting the Eastern Rosella (*Platycercus eximius*). Within its range it generally remains reasonably close to watercourses. In the drier areas it gives way to the Blue-bonnet (*Psephotus haematogaster*) and the Mulga Parrot (*Ps. varius*).

The food of the Redrump consists of seeds of grasses and other plants, with grit and small pieces of charcoal being taken to aid digestion. It rarely partakes of berries or gum tips, but green matter in the form of thistles of various kinds and Crowsfoot (*Erodium botrys*) is always eaten. It has been reported as eating the berries of the introduced Pepper tree (*Schimus molle*), picking them up from the ground under the tree, as opposed to the Eastern Rosella, which eats the growing berries on the tree. The stomach of a male *Ps. haematonotus* taken by E. Ashby at Red Hill, South Australia, in 1935, contained vegetable matter smelling strongly of eucalyptus. This bird, in the opinion of the author, was an exceptional case. The crop and stomach contents of



Copyright]

[Joseph M. Forshaw

OPEN FOREST COUNTRY NEAR CANBERRA

Haunt of the Crimson Rosella (*Platycercus elegans*), the Eastern Rosella (*P. eximius*) and the Red-backed Parrot (*Ps. haematonotus*). Note the leafless upper branches of gum tree : a favourite roosting site for *Ps. haematonotus*.

[To face p. 202

nine birds examined in South Australia in the same year consisted of small seeds, vegetable matter, grains of wheat, scraps of charcoal, fine grit and sand. A more thorough result was obtained when the author examined the crops and stomach contents of seventeen birds taken near Canberra in April, 1962. The following composition was found :—

<i>Name of Seed</i>	<i>Amount</i> %
Amaranthus sp.	1·3
Carex sp.	0·6
Echinochloa crusgalli . . .	40·0
Hordeum sp.	0·3
Linum sp.	53·0
Rumex sp.	3·0
Stipa sp.	1·3
f. Rosaceae (mature seeds from berries probably collected on ground)	0·5

Small pieces of vegetable matter and grit were also found. It can be seen from the above list that the Red-backed Parrot is entirely a ground feeder confined to seeds found on the ground.

When perched in the green foliage of a tree or when feeding on the ground, the colour of both sexes blends extremely well with the surroundings making them difficult to detect. It is, however, easy to approach when feeding on the ground and thus many fall easy prey to cats and other predators. Hawks and falcons also find this bird easy prey. An interesting scene was witnessed by the author at Kambah, A.C.T. in February, 1962, when a Brown Hawk (*Falco berigora*) came within 200 feet of a flock of *Ps. haematonotus* perched on the leafless upper branches of two neighbouring gum trees, waiting to go to drink at a nearby dam. As soon as the hawk was sighted the whole flock left the tree and surrounded the intruder screeching all the while. The hawk, alarmed at this warlike attack, and finding himself surrounded in flight by approximately 200 screeching parrots, made a hasty retreat pursued for a few hundred yards by the band of "hostile warriors". Although the hawk, in this case, was a species not likely to attack the birds, it was most interesting to note their behaviour.

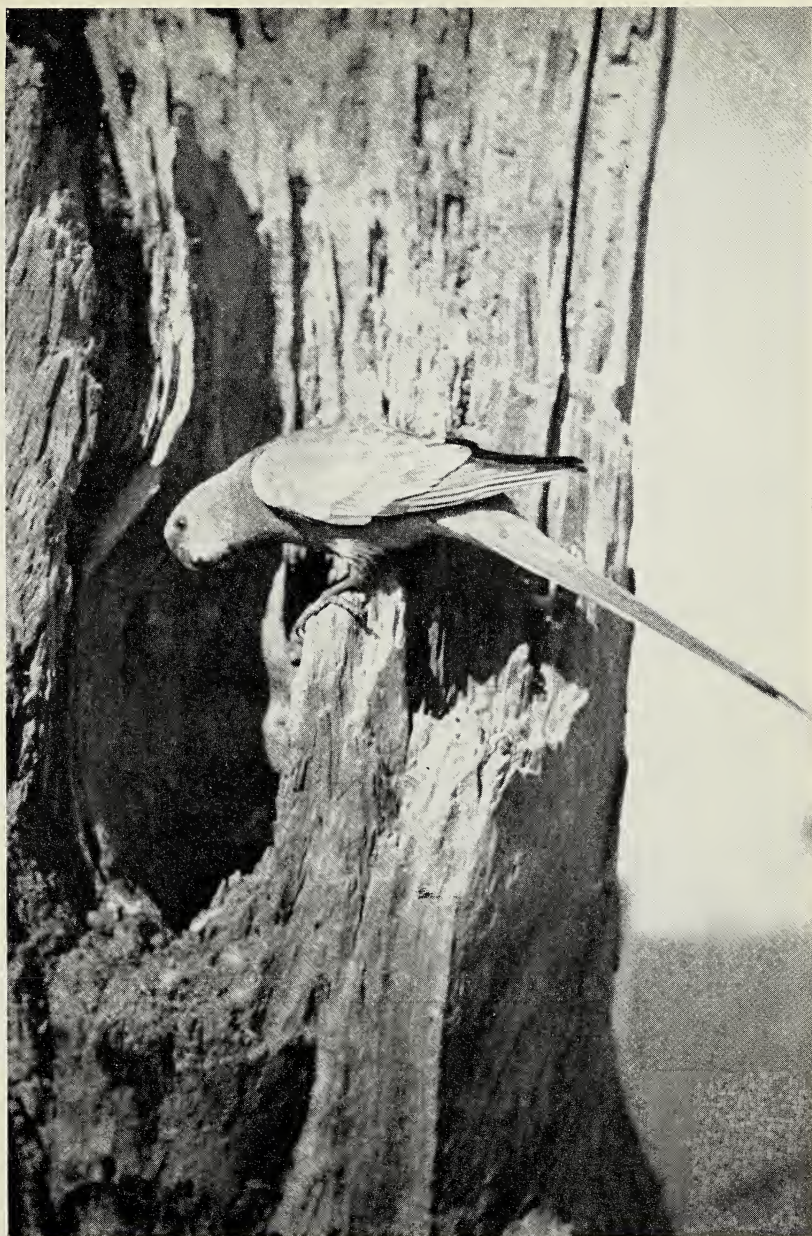
Observations readily show that, although of a highly gregarious nature, this species remains paired within the flocks. While perched in their roosting trees during the day, the males will often be seen sidling towards their mates. The pairs will often be seen chattering to each other and indulging in mutual preening, this species being one of the very few of the Australian parrots possessing this habit. However, if one of a pair is killed the survivor quickly remates with another unmated bird from the flock. About mid-August these affectionate activities take on a new intensity as the males can be observed chasing the females over the ground until the latter fly into a tree. The insistent cock bird follows alighting on the same perch and sidling towards the hen, to whom he directs his display.

The mating display of *Ps. haematonotus* does not differ in many respects from that described for *Platycercus sp.* in the previous articles. The male stretches his neck and bobs his head up and down chattering all the while. The wings are lowered in the folded position, while the spread tail is vibrated quickly from side to side. A short while later this same display is used when the male feeds his mate with regurgitated food. It seems evident that this action serves a double function of display and the facilitation of regurgitating the food. Both sexes use this action when feeding the nestlings. There are many reports of attempted copulation on the part of the male after feeding his mate while she is brooding. Although the author has over the past years observed many nesting pairs he has never seen this take place. There is no doubt, however, that this does happen and its occurrence strongly underlines the double function of the display, namely to ease regurgitation and in courtship.

When selecting a nesting site the breeding pair have to face two formidable opponents in the Starling (*Sturnus vulgaris*) and the House Sparrow (*Passer domesticus*). These introduced birds are a menace to all the Australian parrots, and because of their absorbing numerous suitable nesting hollows, must be regarded as a most serious threat to the maintenance of numbers by many of the parrot-like birds. Indeed one instance is given of a House Sparrow building its nest in a hollow already containing three freshly-laid eggs of the Red-backed Parrot. A full investigation into this situation at an early date is definitely warranted.

The male bird examines the proposed nesting site and spends the next few days forcing his mate to enter the selected hollow limb or hole in a tree. Being a highly gregarious bird the nests are usually in close proximity to each other. In spite of this the strong territorial defences of nesting pairs are maintained. When a tree contains only one nest that tree is defended, but when a tree contains two or more nests only the limb or part of the trunk in the immediate area of the nest is defended. The whole breeding season, which usually lasts from late August to December with some variations in the western parts of the distribution range where rainfall is a deciding factor, becomes a period of constant noise and territorial squabbling.

The nesting site chosen is a hollow limb or hole in the tree at variable height from the ground. The bottom of the hollow is lined with decayed wood on which are laid four to seven, usually five, white eggs, which may quickly become nest stained. An average egg would be .95 in. by .73 in. The eggs are laid at approximately 48 hour intervals and incubation, which lasts about three weeks, commences after the laying of the second egg. The hen only incubates and is fed by her mate at approximately hourly intervals. The female sits very tightly and the author has found, when examining many nests, that she will not leave



Copyright]

[P. A. Bourke

MALE RED-BACKED PARROT (*Psephotus haematonotus*) INSPECTS
PROSPECTIVE NESTING HOLLOW

[To face p. 204



until the very last minute and will sometimes even wait to be lifted from the nest.

When the male feeds his sitting mate he does not do so at the hollow entrance. He approaches the nest calling and chattering and alights near the hollow. The female leaves the nest and flies with the cock to a nearby branch where he feeds her regurgitated food, using the display described previously. It is at this stage that the attempted copulation has been reported to have taken place.

On 16th October, 1960, the author found a nest of this species near Murrumbateman, N.S.W. This nest contained three newly hatched nestlings and one egg. The almost daily inspections and observations on the nest gave the general picture that is outlined here. The author's observations agree in most aspects with those published by other authors. All young had been hatched on 17th October.

Newly-hatched nestlings are naked and helpless with large bills. Grey down appears after a couple of days followed by the gradual acquisition of feathers. For the first few days of their lives they are brooded very closely by the hen bird and fed by her on food brought by the male. When feeding her brood, the female uses the same method of regurgitating food as described previously. Later the cock bird shares the domestic duties and commences to feed the young. When the cock birds of breeding pairs are thus engaged, the flock reaches its lowest numerical strength because previously all the males had continued to flock together, while their mates carried the burdens of brooding.

The nestling stage is of approximately four weeks duration. In the nest under observation by the author one youngster, presumably the first hatched, left the nest after twenty-nine days but had returned the next day. The following day three had left the nest, but the remaining nestling, presumably the last hatched, remained for another two days thus giving the overall time between thirty- and thirty-two days from the estimated hatching date.

The immature birds remain with the parents and can be readily distinguished in flight by their "wing-stripe". These white lines on the underside of the wings are lost by all males on completing their moult giving mature plumage, while all hens retain them.

The flight of *Ps. haematonotus* is reasonably straight and swift with some undulation, but not as much as in the flight of the *Platycercus* sp. It is interesting to note that this species, although a ground-feeding bird, usually flies at considerable heights compared with the larger members of *Platycercinae*. While in flight a pleasant call is always employed.

The call is a pleasing trill-like whistle which is almost a tune. A double shrill whistle note is also employed by this bird. When squabbling or defending their territory a grating chatter is used.

Ps. haematonotus was the subject of an interesting happening reported

by Mr. E. Ashby of Adelaide. Prior to 1887 the Red-backed Parrot was one of the commonest parrots found in the Adelaide Hills. In that year, however, a disease struck this species whereby no feathers were renewed after moulting. As a result of this, naked birds were found running in most paddocks and falling easy prey to all predators. Apart from the absence of feathers the birds appeared quite healthy. So complete was the destruction of the species that none was found for several years and in fact they were still quite rare twenty years later. This disease, which is described as French moult in cage birds, was never previously known in the wild state.

On account of its abundance in the eastern states, the Red-backed Parrot is not a common aviary bird in Australia and few aviculturists attempt to breed it. However it is found in some aviaries and is an interesting attraction, the fully matured male being a truly beautiful bird. In spite of its size it may even outdo its larger relatives as regards a pugnacious character. It cannot be trusted in a mixed collection and becomes very vicious towards other species and towards its own during breeding season.

Breeding in captivity is comparatively simple, and provided reasonable care and attention is given, success is generally the end result. Breeding pairs should be isolated and given two hollow logs or nesting-boxes. There are records of birds rearing broods in tunnels in the earth, under boxes intended as refuges for quail, and other odd places. As this species is often double brooded and the cock becomes hostile towards the young when the hen commences the second sitting, all young should be removed as soon as they can fend for themselves.

Many hybrids with this species have been bred in captivity. Two very interesting records were the breeding of hybrids with the Mallee Ringneck Parrot (*Barnardius barnardi*) and the Western Rosella (*Platycercus icterotis*). These birds were bred in the London Zoological Gardens. There are scattered records of hybrids between this species and the Eastern Rosella (*Platycercus eximius*) occurring in the wild state. The most deliberate use of hybridization with this species occurred in many countries at the turn of the century. At this time single specimens of considerable rarity were reaching some aviculturists. These birds were the rarer members of the genus and this species was often used to complete a breeding pair. Many hybrids with such birds as the Golden-shouldered Parrot (*Ps. chrysopterygius*) were thus bred.

Aviculturists have succeeded in breeding a yellow variety of this bird. These results lead one to wonder whether, in years to come, the stage will be reached where the variety of colours will be as wide as that of another Australian parrot—the Budgerigar (*Melopsittacus undulatus*).

The diet recommended for aviary birds is a mixture of plain Canary seed, sunflower seed, millet and a little hemp when this is obtainable.

Oats does not appear to agree with this species. Sprays of seeding grasses are always appreciated. A plentiful supply of green food is essential especially if breeding is to be carried out. Fruit will rarely, if ever, be eaten.

A popular and cheerful bird, *Psephotus haematonotus* is a happy inhabitant of the Australian farmlands. It is to be hoped that the large flocks will always be a familiar sight in the eastern states. The Red-backed Parrot is yet another intriguing member of Australia's most fascinating bird group.

BIBLIOGRAPHY

- ASHBY, E. "Parrakeets Moulting", *Emu*, vol. 6, no. 4, 1906.
 BARRETT, C. *Parrots of Australasia*, 1949.
 BELL, A. *Some Common Australian Birds*, 1956.
 BOURKE, P. A. "The Breeding Population of a Thirty-five Acre 'Timber Paddock'", *The Emu*, vol. 49, no. 2, pp. 73-83, 1949.
 — "Nesting Notes on the Red-backed Parrot", *Emu*, vol. 51, no. 1, 1951.
 BRAMPTON, E. "How Not to Breed Redrumps", *Avicult. Mag.*, 2nd Series, vol. 1, no. 6, 1903.
 BRERETON, J. LE GAY, and SOURRY, C. "Some Observations on the Distribution and Abundance of Closely-related Parrots of the New England District of New South Wales", *The Emu*, vol. 59, no. 2, 1959.
 CAIN, A. J. "Revision of Some Parrots", *Ibis*, vol. 97.
 CAMPBELL, A. J. *Nests and Eggs of Australian Birds*, vol. 2, 1901.
 CAYLEY, N. W. *What Bird is That?* 1931.
 CONDON, H. T. "The Australian Broad-tailed Parrots," *Records of South Aust. Museum*, vol. 7, pp. 117-141, 1941.
 GOULD, J. *Birds of Australia*, vol. 2, 1865.
 — *Proceedings of the Zoological Society*, 1837.
 HAMILTON, W. "Parrot Diseases in the Wild State", *Avicult. Mag.*, 4th Series, vol. 10, no. 3, 1932.
 HARDY, A. D. "Nesting of *Psephotus haematonotus* in Captivity", *Emu*, vol. 2, no. 1, 1902.
 HINDWOOD, K. A. and MCGILL, A. R. *The Birds of Sydney*, 1958.
 LEA, A. M. and GRAY, J. T. "The Food of Australian Birds", *Emu*, vol. 35, no. 1, pp. 63-98, 1935.
 LENDON, A. H. *Australian Parrots in Captivity*, 1951.
 — "The 'Wing-stripe' as an Indication of Sex and Maturity in the Australian Broad-tailed Parrots", *Avicult. Mag.*, 5th Series, vol. 6, no. 5, 1941.
 LUCAS, A. H. S. and LE SOUEF, W. H. D. *The Birds of Australia*, 1911.
 MATHEWS, G. M. *A Working List of Australian Birds*, 1946.
 — "Additions and Corrections to My List of the Birds of Australia", *Austral. Avian. Record*, vol. 2, no. 7, p. 128, 1915.
 — *Systema Avium Australasianarum*, 1927.
 — *A List of the Birds of Australia*, 1913.
 PETERS, J. L. *Check List of Birds of the World*, vol. 3, 1937.
 RAMSAY, E. P. *Tabular List of Australian Birds*, 1888.
 SAVAGE, A. "Breeding Redrumps", *Avicult. Mag.*, 1st Series, vol. 5, no. 1, 1898-99.
 SETH-SMITH, D. "Notes" *Avicult. Mag.*, 4th Series, vol. 11, no. 10, 1933.

(To be continued)

*

*

*

A CORRECTION TO PAPER ON THE CRIMSON ROSELLA
(*PLATYCERCUS ELEGANS*).

Attention is drawn to the map on page 100 of the AVICULTURAL MAGAZINE, Vol. 68, No. 3.

After reading of the distribution of the Crimson Rosella in the accompanying text the inaccuracy of this map will have been apparent to all. The western and interior portions of Victoria, and the interior of eastern South Australia are not inhabited by this bird. A coastal distribution area applies to both states, as given in the paper.

I must apologize for this error and take full responsibility for not supervising the original preparation of this map. Full and careful supervision will be given to all maps and diagrams in future.

JOSEPH M. FORSHAW.

* * *

FEEDING OF A JAVA FINCH (*Padda oryzivora*) BY A
DOMESTICATED CANARY (*Serinus canarius*).

By DAVID W. DUNHAM * (Laboratory of Ornithology, Cornell University, Ithaca, New York, U.S.A.)

A female Java Finch which had been given no opportunity to breed for at least five years, if ever, was housed alone in a standard commercial Canary cage for several months. A male Canary (sex of both birds determined by laparotomy) was placed in the cage with the Java Finch at the end of May, 1961, after being removed from a breeding programme in which he had participated (Dunham and Clapp, 1962). The Canary was, and has been, almost continuously in song; the daily photoperiod, although irregular, was normally in excess of twelve hours. The Java Finch was at first dominant over the Canary, judging by encounters at food and water, and by perch occupancy. After the first month together the Canary was generally dominant. About four months later the first attempts on the part of the Canary to "feed" the Java Finch were observed. The Canary would approach the finch and attempt to touch the finch's bill with its own, giving a vocalization characteristic of the situation. The reaction of the finch was either to "ignore" the Canary, sometimes allowing him to touch bills, or to turn toward him and make biting intention movements. About five months after the attempts at feeding began, the finch attacked the Canary and drew blood from one wing. I did not see any attempts on the Canary's part at feeding for another month, but after he had resumed the finch participated more actively, and frequently was seen to take small bits (probably broken seeds) from the Canary and mandibulate them in movements of small amplitude, bill-wiping afterward.

* The author was a National Institutes of Health Predoctoral Fellow during the course of this study.

It was once seen to accept a small piece of lettuce from the Canary. About nine months after the first attempt at feeding was noticed, the Canary mounted the finch and remained for twenty seconds on her back, wing-flicking for balance. The finch showed no overt aggression but rather sat quite still. After the Canary dismounted both birds preened extensively and bill-wiped. Mounting has been seen several times since.

Although cardueline finches courtship feed, estrildine finches do not (Andrew, 1961). It is perhaps not surprising that a male cardueline in sexual condition, and isolated from more closely-related birds, would attempt to feed an estrildine, but it does seem remarkable that an estrildine would learn to respond positively to such a behaviour. The motivation for this learning is not clear, but it is possible that by answering the bill touching of the Canary with a small amplitude bite some food may have been taken by the Java Finch, and that this provided sufficient motivation to bring about actual participation by the Java Finch in the feeding ceremony.

REFERENCES

- ANDREW, R. J. (1961). The displays given by passerines in courtship and reproductive fighting : a review. *Ibis*, 103a, 549-579.
 DUNHAM, D., and R. CLAPP. (1962). The effects of exogenous gonadotrophins and egg removal on clutch size in the domesticated Canary, *Serinus canarius*. *Auk*, 97, 458-462.

* * *

MORE ADVENTURES WITH LIBERTY WHITE-EYES

By R. A. RICHARDSON (Cley, Norfolk, England)

Members who read the account of the successful breeding of the Indian White-eye (*Zosterops palpebrosa*) at liberty in north Norfolk in 1961 (*antea* vol. 68, p. 51) may remember that at the beginning of 1962 I had two new true pairs with which I hoped to repeat the experiment.

Pair "A" (male, red ring left leg ; female, black ring left leg) was released via the exit hole in the wire-netting of the aviary flight on 24th April, 1962, and at once disappeared. A complete fiasco !

Pair "B" (male, white ring right leg ; female, white ring left leg) was kept in confinement until 8th June on which day the female was released, much to her mate's consternation and remained in the neighbourhood, being a constant visitor to the nectar tube provided for her. The male was allowed to join her ten days later by which time she had, I believe, built a nest "single-handed" and laid eggs, in a small wood some 100 yards away though this was never actually located. These eggs were naturally infertile but the birds wasted no time and duly constructed another nest in the same wood which I discovered on 31st July when both birds of the pair visited the aviary together for the first time, the male carrying in his bill a white faecal sac which he

wiped off on the washing line before flying to the nectar. Soon one of the parents flew directly to the tiny spherical hammock slung to the leaf-stems beneath the lowest bough of a lofty elm and at least 25 feet from the ground. By standing well back and watching through binoculars I could see the heads of three nestlings pop up quivering with open mouths at each visit by the parents. With the unbroken feather-buds darkening their heads they were judged to be about six days old.

On 4th August two of the chicks were sitting preening themselves on the rim of the nest and by the next day they had flown up into the neighbouring trees leaving the third, and rather smaller chick in the nest where it was deserted and subsequently died.

7th August was a foul day of driving rain and a force 6-7 north-west wind and I was relieved to discover the two surviving fledglings huddled together well down in the undergrowth and being fed repeatedly by the adults.

At about this time I became aware of a cock White-eye singing in the garden, and puzzled to think that the chicks' father had the time to spend in idle singing, went to investigate. Imagine my surprise to find male "A" back again after an absence of fifteen weeks. One can only speculate on the fate of his mate and his journeyings during the time he was away.

The young "twins" were seldom seen at this stage being well hidden high up in the canopy of the tallest trees but the parents were in and out of the garden all and every day and began to carry off fragments of sweet apple and small pieces of raw minced beef, towering high above the rooftops with boundless energy.

Male "B" did not approve of male "A" sharing his territory and many were the minor scuffles and angry bill-snappings which ensued when they met at the nectar.

On 21st August the youngsters accompanied their parents back to the garden for the first time and on the 26th all five birds were coming to the feeder.

With the previous year's losses prominent in my memory I decided to admit the birds to the aviary for the winter and within half an hour all five had passed through the pop-hole to the safety of the flight and there they are to-day, the two adult males still pulling faces at each other but rapidly settling down.

From their behaviour the two juveniles would seem to be a true pair and they are already inseparably attached to each other. I must colour-ring them in due course, so they can take their place among the local avifauna next spring and perhaps rear a brood of their own as pair "C".

Should any reader have a spare female as a mate for male "A" I would be very glad of the opportunity of purchasing it. Please write to me at Hill-Top, Cley, Holt, Norfolk.

BREEDING THE BLUE SUGAR BIRD

(Dacnis cayana)

By E. NORGAARD OLESON (Janderup, Denmark)

In October, 1961 I was lucky to get a pair of these beautiful birds. They were in excellent condition, and although the male was in juvenile dress, he assumed the adult plumage, blue and black in the winter. They were very peaceful in the aviary, and later in the winter the male began feeding the female, especially when mealworms were accessible. In April the female began carrying nesting material and on 11th May she had decided on a wicker nesting-basket 2.5 metres from the ground in the indoor aviary. The male followed the female when she was building, uttering his call note all the time, but did not help in building the nest. On 15th May there was an egg, bluish white with small brown spots. On the same date the female started brooding, and the male was feeding her both in the nest and outside it. On 26th May a newly hatched young, yellowish red with little down, lay in the nest. During the first days I am sure only the female was feeding the young, but later on the male was eagerly helping her. The food was regurgitated. On 7th June the birds were chasing a Mousebird and on the 8th the male began chasing the female and she was not allowed to feed the young or get in the nest. But miraculously the male succeeded in both feeding the young and keeping the female away from the nest. On 13th June the youngster left the nest as a small, greyish-green bird with a short tail but it was so strong that from the first day it could find its way from the indoor to the outdoor aviary and back again. The male continued to feed the young until about 10th July and on the 13th the youngster tried to sing for the first time. Now, in September, he is as large as the parents, and still wearing the juvenile dress. As food for these birds I use eggs, fruits, mealworms, small insects and honeywater.

The call-signal is a sharp tsit, the song is not very interesting, a few sharp twittering notes with the beak pointed upwards and hanging wings.

A. F. Skutch writes in his book : *Life Histories of Central American Birds* (1943) that he has not heard the bird sing, and he believes that there is no nuptial feeding.

* * *

LONDON ZOO NOTES

By J. J. YEALLAND

In recent years the Cattle Egrets, Buff-backed Herons or Tick Birds, as *Bubulcus ibis ibis* is variously known, have made a number of unsuccessful attempts at nesting but at last a chick has been reared—at least it is now walking unsteadily about the branches close by the nest, though is not yet able to fly. There are five adult birds in the Great Aviary and the rather scanty twig nests are always built at about 10 feet from the ground in privet and other bushes. If this chick is fully reared it would appear to be the first breeding in this country.

In the same aviary a Green-backed × Grey-headed Gallinule has also been bred. The male parent, received in 1950, crossed with a Grey-headed in 1957, the resulting chick's adult plumage being very like that of the father, but the bird is distinguishable by its smaller size. The present young one is becoming green on the back.

A Sarus Crane was hatched at the end of August, a second dying soon after getting out from the egg. Black Swans have two cygnets and a second Princess of Wales' Parrakeet has been bred.

The Eagle-Owl from the Amani Forest already mentioned in previous Notes is identified as *Bubo vosseleri* (or *B. poensis vosseleri*).

The common name used by Sclater (*Syst. Av. Aethiop.*, 1930) and by Mackworth-Praed and Grant (*Bds of E. and N. E. Africa*, 1952) would appear inappropriate and came evidently from the name used by Bates (*Handbook of Bds of W. Africa*, 1930) for what is now known as Fraser's Eagle-Owl, *Bubo poensis*. Bates says, "About the sound it makes I have only native testimony ; that the fact that it has a separate name, *Nduk*, while all other Owls are called *Akung* is due to its slightly higher-pitched voice (*nduk* in Bulu has a higher tone than *akung*)."

The white egrets also mentioned previously are now identified as Little Egrets (*Egretta garzetta garzetta*).

A Brown-hooded Kingfisher (*Halcyon albiventris*), presented by Lady Baillie, is a species new to the collection. Other arrivals of particular interest are a Southern White-breasted Crake, two Black-winged Stilts, two White-eared Fruit Doves (*Phapitreron leucotis*), a Long-tailed Parrakeet (*Psittacula longicauda*), a Lilac-breasted Roller, two Blue Whistling Thrushes and a pair of Rufous-chinned Laughing Thrushes. The Fruit Doves were sent from Hong Kong by Dr. K. C. Searle, but the species is, of course, from the Philippine Islands, five races from different islands being recognized.

A Common Hangnest presented during 1935 has recently died : its age at the time of arrival is not known.

NEWS AND VIEWS

Preliminary notices of possible first breedings. Hahn's Macaw at The Birdland Zoo Gardens, and the Blue-shouldered Mountain Tanager at the Keston Foreign Bird Farm.

* * *

J. C. Garrat has bred two Yellow-winged Sugar Birds *Cyanerpes cyaneus*. Eggs were laid on 15th and 16th July ; hatched on 26th and 27th July ; and the two young ones left the nest on 9th August.

* * *

H. Murray had a rather disappointing breeding season but managed to breed a few good birds—Barraband's Parrakeet, two ; Bourke Parrakeet, two ; Cockatiel, three ; Chinese Painted Quail, ten ; White-shouldered Tanager *Tachyphonus rufus*, two nests of two each reared ; Goldfinch, three ; and a few odd Waxbills.

* * *

Last winter a small number of Sierra Parrakeets *Amoropsittaca aymara*, from the highlands of Bolivia, south through the mountains of Argentina, arrived in this country. During the past breeding season A. V. Marques successfully reared one young one, and in mid-September K. Russell reported three young in the nest. The latter member has had the good fortune to have ten young fully reared in two nests by a pair of Pennant's Parrakeets.

* * *

The report of the successful breeding of the Blue-headed Waxbill by Derek Goodwin has brought further, but later records of success with this species. Sir Richard Cotterell, Bt., reports : " The situation at the moment (16th August) is that three young ones from one nest are able to look after themselves, and three more pairs are sitting." F. N. Leith, Johannesburg, two pairs of young left the nest on 5th February and 7th March respectively, and have developed into fine birds.

* * *

Dr. J. R. Hodges sends news of his Blue-winged Grass Parrakeets. He writes : " The cock of my old breeding pair died during the winter. Another cock which I was able to borrow from a friend savagely attacked the hen in his attempts to drive her to nest and, although she was rescued just in time, she has been unable to fly ever since. A very young pair had three clutches of fertile eggs but were unsuccessful in rearing any youngsters. A third pair, consisting of the cock and hen which I hand-reared last year, produced three excellent young birds in April but the hen died when her second brood were only a few days old."

John A. Fell reports that aviculturists in Gippsland, Victoria, appear to have had a better breeding season than those in Melbourne. His own parakeet results for the 1961-62 breeding season are : Nyasa Lovebird, nests of one, two and four reared. Peach-faced Lovebird, two nests of four reared, after a clutch of infertile eggs. Bourke Parakeet, a young pair reared two. Turquoise, nine young reared in two nests. Blue-winged, nests of seven and three reared. Many-coloured, nest of four reared. Red-rumped, two pairs reared six. Mealy Rosella, only one reared, three more were killed in the nest by other parakeets. Yellow Rosella, three reared. Crimson Rosella, the female was disturbed by swarming bees and deserted her five eggs. Red Rosella, the female was disturbed and stung by bees ; the four eggs were transferred to a pair of Golden-mantled Rosellas which hatched them and reared the young together with two of their own. Rainbow Lorikeet, a single young one reared ; a second pair killed their young one. Budgerigar, wild, green type, two reared. Yellow-bellied $\times$ Yellow Rosella, three young were killed by hawks when about five weeks old.

* * *

During the course of many years reading of ornithological literature I have come across countless bulls and blunders. Possibly the greatest howler is to be found in Cory, " Catalogue of Birds of the Americas " (Field Museum of Natural History, publication, 197, 1918, p. 91), where the English name of *Graydidascalus brachyurus* is given as SHIRT-TAILED PARROT !

A. A. P.

* * *

REVIEWS

CHECK-LIST OF BIRDS OF THE WORLD. VOL. XV.

A continuation of the work of JAMES L. PETERSEN. Edited by ERNST MAYR and JAMES C. GREENWAY, Jr., Museum of Comparative Zoology, Cambridge, Mass., U.S.A., 1962. Price 7.50 dollars.

The present volume of this invaluable work has been published before Volume VIII and Volumes X-XIV for which the editors beg indulgence to those who may be confused by a lack of conformity in the issuance of the volumes of the series. The first seven volumes contained the Non-Passerines and Volume IX, published in 1960, contains a list of birds comprising the first thirteen families of the Order of perching birds. It is stated that though in 1960 the editors had the manuscript for volume VIII they decided not to print it but to bring the volume out later because of the considerable amount of new basic work going forward on the complicated family of Tyrant Flycatchers.

Volume XV comprises eleven families of song birds :— Ploceidae (Weaverbirds) by R. E. Moreau and James C. Greenway, Jr.; Sturnidae (Starlings) by Dean Amadon ; Oriolidae (Orioles) by James C. Greenway, Jr.; Dicruridae (Drongos) by Charles Vaurie ; Callaeidae (New Zealand Wattlebirds) by Dean Amadon ; Grallinidae (Australian Mud Nest Builders) by Ernst Mayr ; Artamidae (Wood-Swallows) by Ernst Mayr ; Cracticidae (Australian Butcherbirds) by Dean Amadon; Ptilonorhynchidae (Bowerbirds) by Ernst Mayr ; Paradisaeidae (Birds of Paradise) by Ernst Mayr ; and Corvidae (Crows and Jays) by Emmet R. Blake and Charles Vaurie.

This Check-list is the basis of all taxonomic studies in ornithology, and Volume XV will be particularly welcomed by aviculturists who specialize in the families of birds dealt with.

P. B-S.

FOREIGN BIRD KEEPING. By EDWARD J. BOOSEY (Second Edition) Iliffe Books, Ltd., London. Price 70s. net.

This new and enlarged edition of Mr. Boosey's book (see *Avicult. Mag.* 1959, 62 : 2 : 87-8 for review of previous edition) is quite the best general work on its subject that I have read. It is not, however, as is stated on the dust jacket " a *complete* guide to breeding and management " (*italics mine*) of all the species it deals with. On the contrary Mr. Boosey, unlike some other writers on foreign birds, is most scrupulous in telling us exactly how much or how little experience he has had with each species. This honesty adds greatly to the practical value of the book since the reader is not allowed to think that the advice given is based on long experience of keeping and breeding a species except where this is actually the case.

There are a few ornithological errors ; such as the distribution of the " all-American " dove *Claravis pretiosa* being given as New Guinea. My only feelings of disquiet on reading the book were at the rather spartan diets recommended for some of the doves and waxbills.

The author's interest in and love of birds shines through the book. Not the least interesting part of which is the autobiographical section. Reading it one feels admiration for and sympathy with the young man who, together with his partner, had the vision and determination necessary to make such a lasting and many-sided success of his avicultural activities and grieves with him at the passing of the years now that he is no longer young.

D. G.

*

*

*

ALABAMA BIRDS. By THOMAS A. IMHOF. University of Alabama Press, Alabama, 1962. Price \$7.50.

This is a detailed description of the 352 species of birds known in Alabama, with colour illustrations by Richard A. Parks and Daniel C. Hulse. There are also photographs of habitats and nests, maps showing distribution and banding records, accounts of nesting and food habits, the range of each species, and records of their occurrence in Alabama.

This is the first large publication produced by the Game and Fish Division of the Alabama Department of Conservation and has been prepared in response to the many requests for a book on the identification and life-histories of Alabama's birds. The result is a most attractive volume produced at a very reasonable price. The introductory chapters include preparation for bird observation, the history of ornithology in Alabama, the physiography of the State, and laws concerning birds, migration, and banding. There are also common names of Alabama birds, dates of breeding, and migration, ways to attract and observe birds, the construction and siting of feeding and nest-boxes, and reporting recoveries of banded birds.

Whilst this book is intended primarily for bird-watchers, aviculturists will find much of interest, for many of the species have become well known in aviaries.

E. H.

INDEX

- Accounts, 81.
 Air transport of birds, 36.
Ara s. severa, Bred, 35.
 Avicultural Bulletin, New editor, 40.
 Avicultural Society :—
 " " Certificate of Merit Award, 38.
 " " Council Meetings, 37, 112.
 " " Medal awards, 37, 112.
 " " New, 112.
 " " Officers, 1962, 37.
 " " Subscription, 116.
 Avicultural Society of S. Australia :—
 " " 21st Anniversary, 40.
 " " Medal awards, 41, 148, 176.
 " " President elected, 148.
- Babbler, Rufous-bellied, Medal award for breeding, 37.
 Bird Garden, Tropical, opened, 114.
 Bird of Paradise, Red, Notes on breeding, 48.
 Birds of Paradise, Bred in Hallstrom collection, 47.
 Birds, Hand-rearing, 90.
 " Transport by air, 36.
 Breeding notes :—
 " " Chester Zoo, 173.
 " " Clères, 165.
 " " Enehjelm, C. af, 78, 113.
 " " Gippsland, Victoria, 214.
 " " Hallstrom collection, 66.
 " " Isenberg, A. H., 66.
 " " Keston Bird Farm, 41.
 " " Langberg, W., 176.
 " " Miscellaneous, 77, 78, 79, 149, 176.
 " " Robinson, B. E., 177.
 " " Scammell, K. M., 176.
 British Aviculturists' Club, 40, 76, 112, 175.
 Bustard, Great, Efforts to breed in captivity, 169.
- Calliope calliope*, Bred, 155.
 " *pectoralis*, Bred, 158.
 Canary feeds Java Finch, 208.
 Chat, Pied Bush, Probable first breeding, 164.
 Chester Zoo, Breeding Eagle-owls, 146.
 " " News, 109, 173.
Chlorophanes spiza, Bred, 49.
 Clères, Report for 1962, 165.
 Cockatoos, Breeding notes, 149.
 Collins, J. E., Awarded medal, 112.
 Congress, 13th International Ornithological, Society represented, 113.
 Cotterell, Sir Richard, Awarded medal, 112.
 Council Meeting, 37, 112.
 Crane, Spotted, Medal award for breeding, 41.
- Dacnis cayana*, Bred, 211.
 Dove, Key West Quail, Nesting behaviour, 136, 170.
 " Luzon Bleeding Heart, Bred, 42.
 " Pheasant-tailed Cuckoo, Medal award for breeding, 176.
 Doves, Behaviour in captivity, 93.
 " Notes on, 79.
 Duck, Eider, Unusual diet, 168.
 " Fulvous Tree, Incubation period, 69.
 " Indian Tree, Incubation period, 69.
 " N.Z. Brown, Certificate of merit awarded for breeding, 38.
- Erythura pealii*, Notes on keeping, 197.
 Evelyn Dennis Memorial Medal instituted, 112.
- Films and Talks :—
 " Ornamental Pheasant Trust pheasants," 40.
 " Birds unlimited or a visit to the Uganda National Parks," 76.
 " To Spain for birds again," 112.
 " A glimpse of Kenya and of ' Bird-land ', 175.
 Finch, Java, Fed by canary, 208.
 " Peale's Parrot, Keeping and breeding, 197.
 Firefinch, Black-bellied, Breeding of, 27.
 " " " Medal award for breeding, 112.
 Flycatcher, Derby, Breeding of, 64.
- Galahs, Note on, 149.
 Gallinule, Purple, In Great Britain, 80.
Garrulax rufogularis, Notes on, 182, 188.
 Goose, Pink-footed, Breeding of, 54.
 " Red-breasted, Unusual clutch, 178.
 Grackle, Rothschild's, Bred in San Diego Zoo, 153.
 Groundsel, Doubtful value as bird food, 152.
- Hawaii Audubon Soc., Annual bird trek, 77.
 Honeyeaters, New Zealand, Note on, 45.
 Hummingbird, Allen's, Breeding of, 86.
 Hummingbirds, Capture and maintenance, 59.
 Hybrids :—
 Barraband × Crimson-winged Parakeet, 176.
 Masked × Fischer's Lovebird, 148.
 Silverbill × Bengalese Finch, 30.
 Turdas grayi × *T. cordis*, 66.
- Jay-Thrushes, 182, 188.
 " " Behaviour, 189.
 " " Calls, 193.

- Jay-Thrushes, Food, 193.
 „ „ „ Acorns, 182.
 „ „ „ Nesting, 194.
- Kakapo breeding project unsuccessful, 41.
 „ „ Capture prohibited, 148.
- King, H. T., elected Hon. Life Member, 37.
 Kiwi, At Edinburgh Zoo, 149.
- Lagonosticta rara*, Bred, 27.
 London, Alan, Awarded medal, 148.
Leucopsar rothschildi, Bred, 153.
 London Zoo notes, 38, 76, 111, 147, 174, 211.
Loriculus beryllinus, Note on, 81.
 Lorikeet, Ceylon, Note on, 81.
 „ „ „ Corrigendum, 152.
 Lory, Black-capped, Bred, 77.
 Lovebird, Black-collared, In Western Uganda, 41.
 „ „ „ Red, Breeding results, 148.
- Macaw, Hahn's, Possible first breeding, 213.
 „ „ „ Severe, Breeding of, 35.
- McKechnie, R. W., Awarded medal, 176.
Malurus cyaneus, Bred, 84.
 Mannikin, Brown, Medal award for breeding, 37.
 Martin, A., Awarded medal, 37.
 Merganser, Hooded, Bred in England, 166.
 Murray, H., Awarded medal, 112.
 Mynah, White Bali, *see* Grackle, Rothschild's.
- National Cage Bird Show, 72.
 „ „ „ Foreign birds at, 72.
- National Council of Aviculture, Society represented on, 37.
 Nidification, Meaning of term, 44.
 Niltava, Rufous-bellied, Medal award for breeding, 112.
 Norris, K. A., Awarded medal, 112.
 North England Zool. Soc., Annual visit, 149.
- Ornamental Pheasant Trust, Ann. Report, 2.
 Ornithological Congress, 13th International, 113.
Otis tarda, Attempts to breed, 169.
 Owls, Eagle, Breeding of, 146.
- Parrakeet, Blue-winged Grass, Note on, 213.
 „ „ „ Golden-shouldered, Note on, 70.
 „ „ „ Medal award for breeding, 148.
 „ „ „ Pennant's, Breeding of, 42.
 „ „ „ Princess of Wales, Blue mutation bred, 113.
- Parrakeet, Red-rumped. *See* Parrot, Red-backed.
 „ „ „ Sierra, Bred, 213.
- Parrot, Crimson Rosella. *See* Rosella.
 „ „ „ Eastern. *See* Rosella.
 „ „ „ Red-backed, Notes on, 199.
- Parrots, Australian, 98, 129, 199.
 „ „ „ Bred in Hallstrom collection, 46.
 „ „ „ Origin of picture "A meeting of parrots", 79.
- Penguins at Edinburgh Zoo, 150.
- Pheasant, Elliot's, Note on, 1.
 „ „ „ Horned. *See* Tragopan.
- Pheasants, Methods of keeping, 22.
 „ „ „ Ornamental, Notes on care, 10.
 „ „ „ Scheme for ringing and registration, 44.
- Pigeon, Bleeding-heart, Many bred in N.S.W., 177.
 „ „ „ „ Diet, 177.
- Pigeons, Behaviour in captivity, 93.
 „ „ „ Notes on, 79.
- Pitangus sulphuratus*, Bred, 64.
- Pitta, Bengal, Breeding of, 33.
- Platycercus elegans*, Note on, 99.
Platycercus eximius, Note on, 129.
Psephotus haematonotus, 199.
- Quail, American :—
 „ „ „ Bobwhite, 15.
 „ „ „ „ Black-throated, 16.
 „ „ „ „ Central American, 16.
 „ „ „ „ Crested, 16.
 „ „ „ „ Northern, 16.
 „ „ „ „ Forest, 17.
 „ „ „ „ Capucira, 17.
 „ „ „ „ Guiana, 17.
 „ „ „ „ Red-headed, 17.
 „ „ „ „ Spotted, 18.
 „ „ „ „ Large-billed, 18.
 „ „ „ „ Massena's, 18.
 „ „ „ „ Ocellated, 19.
 „ „ „ „ Singing, 18.
 „ „ „ „ Breeding methods in Japan, 114.
 „ „ „ „ Chinese Painted, Breeding behaviour, 143.
 „ „ „ „ Painted, Note on, 24.
- Quincey, R. S. de Q., Awarded medal, 37.
- Ravens' cage at Tower of London to be replaced, 41.
- Reviews :—
Down the long wind (Garth Christian), 43.
Cliffs of freedom (Roscoe Howells), 43.
Country book. A personal anthology (Macdonald Hastings), 115.
Animal dispersion in relation to social behaviour (V. C. Wynne-Edwards), 151.

Reviews :—

- Check-list of birds of the world*, vol. xv
(Edited by Ernst Mayr and James
C. Greenway, Jr.), 214.
Foreign bird keeping, second edition
(Edward J. Boosey), 215.
Alabama birds (Thomas A. Imhof), 216.
Rifle-bird, Note on, 95.
,, ,, Display (illustrated), 96.
Robin, Indian, Medal award for breed-
ing, 37.
Rollulus rouloul, 13.
Rosella, Crimson, Note on, 99.
,, ,, Correction to note, 208.
,, Eastern, Note on, 129.
Rouloul, Note on, 13.
Rubythroat, Probable first breeding, 155.
,, Himalayan, Probable first breeding
158.
Saxicola caprata, Bred, 162.
Scott, Peter, Awarded medal, 77.
Selaphorus alleni, Bred, 86.
Shelduck, Information on breeding re-
quested, 178.
,, Ruddy, Medal award for breeding,
176.
Skua, Swallows glove, 80.
Spreo, Superb, Bred, 41.
Sugarbird, Black-headed, Breeding of,
49.
,, Blue, Breeding of, 211.
,, Yellow-winged, Breeding of, 213.
Syrnaticus ellioti, 1.
Tanager, Cayenne, Medal award for
breeding, 112.
Thomas, Bev, Awarded medal, 41.
Thrushes, Jay. *See* Jay-Thrushes.
Touraco, Knysa, Bred, 148.

Tragopans, 20.

- ,, Breeding, 21.
,, Chicks, 21.
,, Display, 21.
,, Nesting, 21.
Tropical Bird Gardens opened, 114.
Twinspot, Brown, Display and behaviour,
139.
,, Peter's, Display and behaviour,
139.
Uraeginthus cyanocephalus, Note on, 118.
Wassenaar Zoo, New aviary, 71.
Waterfowl, 68.
,, Copulation, 69.
,, Moulting patterns, 68.
,, Nesting, 68.
,, Plumage, 70.
,, Sleeping, 69.
Water-Rail, Breeding of, 179.
Waxbill, Blue-headed, Possible first
breeding, 118, 175.
,, ,, Behaviour, 124.
,, ,, Feeding, 123.
,, ,, Voice, 124.
,, ,, Note on further breedings, 213.
Weavers, Development and plumage,
106.
White-eye, Indian, Liberty breeding of,
51, 209.
Whydahs, Development and plumage,
106.
Wildfowl Trust, awarded Certificate of
Merit, 38.
Williams, M., Awarded medal, 37.
Woodpecker, Yellow, Medal award for
breeding, 112.
Wren, Fairy Blue, Breeding of, 84, 178.
Zosterops palpebrosa, Bred, 51.

**FAMOUS
SINCE
1823**

HEALTH GRAINS

"GREENSTUFF"

C.L.O.

Control	Starvation
Rearing and Condition Food	(Condition Seed)

3 oz.	1/-
1 lb.	4/6
3½ lb.	15/6
7 lb.	30/-

A dehydrated form of green food consisting of lettuce, spinach, carrot, etc., readily taken by all birds. Packets 1/- & 3/6, also sold in bulk.

[illegible]

" MARBA " DUTCH BRED
(small type)

"SANTA GERMAN BRED"
(large type)

Whether you prefer the small Dutch mealworm or the larger German type, we can give you the finest service obtainable, with shipments arriving twice weekly. Dispatch guaranteed same day as orders received.

1 oz.	3/-	2 oz.	4/9	4 oz.	8/-	8 oz.	14/-	1 lb.	23/6
Also in original Boxes as imported					Nett weight guaranteed				
2 lb.	45/-	3½ lb.	62/6	6½ lb.	£6 0s. 0d.	All Carriage Paid.			

We sell only the best liver-fed maggots, specially recleaned and ready for immediate use for bird feeding. Packed in bran. No mess or smell.

2 oz.	4 oz.	8 oz.	1 lb.
3/4	4/6	7/-	10/6

	½ lb.	1 lb.
Dried Flies (Chinese)	5/-	9/6
Silkworm pupae (Whole)	3/9	6/6
" " (Ground)	4/-	6/9
Dried Dragonfly larvae	6/6	12/6
Dried Shrimp (Fine, Medium, or Coarse)	2/3	3/6
Ant Eggs	13/6	25/-
Pure Dried Egg	6/6	12/6
Dried Rowan Berries (Whole)	2/9	4/6
" " (Crushed)	3/-	4/9
Pure Breadcrumbs (Fine, Medium, or Coarse), far superior to biscuit meal	2 lb. 3/- ; 4 lb. 5/6 ; 14 lb. 17/6 ; 28 lb. 28/-	
"Eggs"-crumbs," guaranteed to consist of 90 per cent pure egg	2 lb. 5/6 ; 4 lb. 10/6 ; 7 lb. 17/6	

ALL ABOVE PRICES ARE POST PAID

255 Walderslade Road, Chatham, Kent

Phone : Chatham 61068

Grams : *Avicult. Chatham, Kent*

BOOKS on BIRDS

*Catalogue
on
request*

WHELDON & WESLEY LTD.

LYTTON LODGE, CODICOTE,
NR. HITCHIN, HERTS.

Telephone : CODICOTE 370.

An absolute international novelty

For simple respiratory acarasis
and that that is associated to
the most common complications.



ACARICIDE CANDIOLI
SPRAY
FOR ORNITHOLOGY

CANDIO - ACAR

International Patent

"**CANDIO ACAR**," has been tested, approved
and been adopted by the RESEARCH CENTER
FOR BIRD'S DISEASES (C.R.M.U.) of the
University of Parma, controlled by
Prof. ITALO VACCARI.

for all cage birds and for pigeons.

ISTITUTO CANDIOLI s. p. a.

Veterinary Section - Turin, Italy - Founded in 1882.

SOLE AGENTS are needed for our free zones.

When Visiting the

COTSWOLDS

AVICULTURISTS ARE WELCOME

TO

“BIRDLAND”

*Set in the charm of an
old English Garden at
the lovely Village of*

BOURTON-ON-THE-WATER

The Cage Bird HEALTH SERVICE!



from your seed dealer

VIT-MIN Powder 1/4, 3/9, 12/- ; Liquid 3/6, 11/-
The supreme diet supplement, rich in all essential vitamins and minerals. Given in seed, soft food, or water, it ensures superb health & fertility, & **BUILDS FINE STURDY BIRDS.**

BIRD TONIC 1/2, 2/2, 3/9, 10/6
The finest tonic and pick-me-up. Purifies the blood and tones up the system. Ensures sparkling health and vitality for breeding and showing.

MOULTONE 1/7, 3/9, 10/6
A special tonic for birds in the moult. Quickly restores vitality, and aids feather growth.

A.B.C. MIXTURE 1/7, 3/9
For the relief of Asthma, Bronchitis, and Colds.

AVOL (Liquid) **AVEX** (Powder) 1/10, 3/3
Both for the prevention and treatment of Enteritis, Diarrhoea, Looseness, Sickness, Indigestion, Acidity, etc.

ANTI-PEK 2/11, 5/6
New aerosol spray for feather plucking. Improved, highly effective formula. Non staining.

ANTI-MITE (Aerosol) 2/7, 4/8, 9/9
Press-button insect spray for **DIRECT** use on birds and cages. Kills all mite and lice. Harmless to birds.

RID-MITE 1/1, 2/8
The safe and efficient insect powder. For dusting birds, cages and nest linings. Kills all mite and lice.

SCALY-CREAM Tubes 1/6, 2/6, Jars 2/6
The certain cure for scaly face and scaly leg. The modern remedy in hygienic applicator tube.

Johnson's Veterinary Products Ltd., Sutton Coldfield, Eng.

STUDIES ON GREAT CRESTED GREBES

By
K. E. L. SIMMONS

Price 5/6 post free

PUBLISHED BY
THE AVICULTURAL SOCIETY
GALLEY'S WOOD
EDENBRIDGE, KENT

CANDIDATES FOR ELECTION

- K. BISHOP, Ville Baudu, Vale, Guernsey, Channel Islands. Proposed by H. W. H. Ozanne.
- H. BROWN, 33 Bay Park, Larne, Co. Antrim, Northern Ireland. Proposed by A. A. Prestwich.
- W. L. CHAPLIN, The Cotswold Game Farm, Camp, Glos. Proposed by W. R. Partridge.
- RAY ESTES, Catalina Bird Park, P.O. Box B-2, Avalon, California, U.S.A. Proposed by Miss K. Bonner.
- HOWARD FURLOW, Rt. 2, Box 251, Norman, Oklahoma, U.S.A. Proposed by Otis Wade.
- D. W. JEAKINGS, 34 St. Giles Road, Codicote, Nr. Hitchin, Herts. Proposed by D. F. Castle.
- R. REGNERY, 29 Forrest Flats, 12 Fitzroy Street, Forrest, A.C.T., Australia. Proposed by Joseph M. Forshaw.

NEW MEMBERS

The thirteen Candidates for Election in the September–October, 1962, number of the AVICULTURAL MAGAZINE were duly elected members of the Society.

CHANGES OF ADDRESS

- IVAN BAMPTON, to 28 Oakland Gardens, Harrogate Hill, Darlington, Co. Durham.
- D. M. COWARD, to Mallards, 47 Bloomfield Avenue, Bath.
- G. H. PETER FRANK, to 2227 Donnie Road, Newport Beach, California, U.S.A.
- Miss SUSAN HARPER, to St. Martin's Green, St. Martin, Helston, Cornwall.
- Dr. W. C. OSMAN HILL, to Yerkes Regional Primate Center, Anatomy Dept., Emory University, Atlanta 22, Ga., U.S.A.
- Major M. HUGHES-HALL, to P.O. Box 8518, Causeway, Southern Rhodesia.
- JOHN L. MCKEAN, to 1 Leslie Street, Ainslie, A.C.T., Australia.
- A. R. M. McTURK, to 56 Towersey Drive, Thame, Oxon.
- K. N. R. VINE, to 3 Montagu Place, Oakwood, Leeds 8.
- MARK VINSON, to Merrifield Farm, South Brent, S. Devon.

DONATIONS

(Coloured Plate Fund)

	s.	d.
Dr. N. McLetchie . . .	7	0

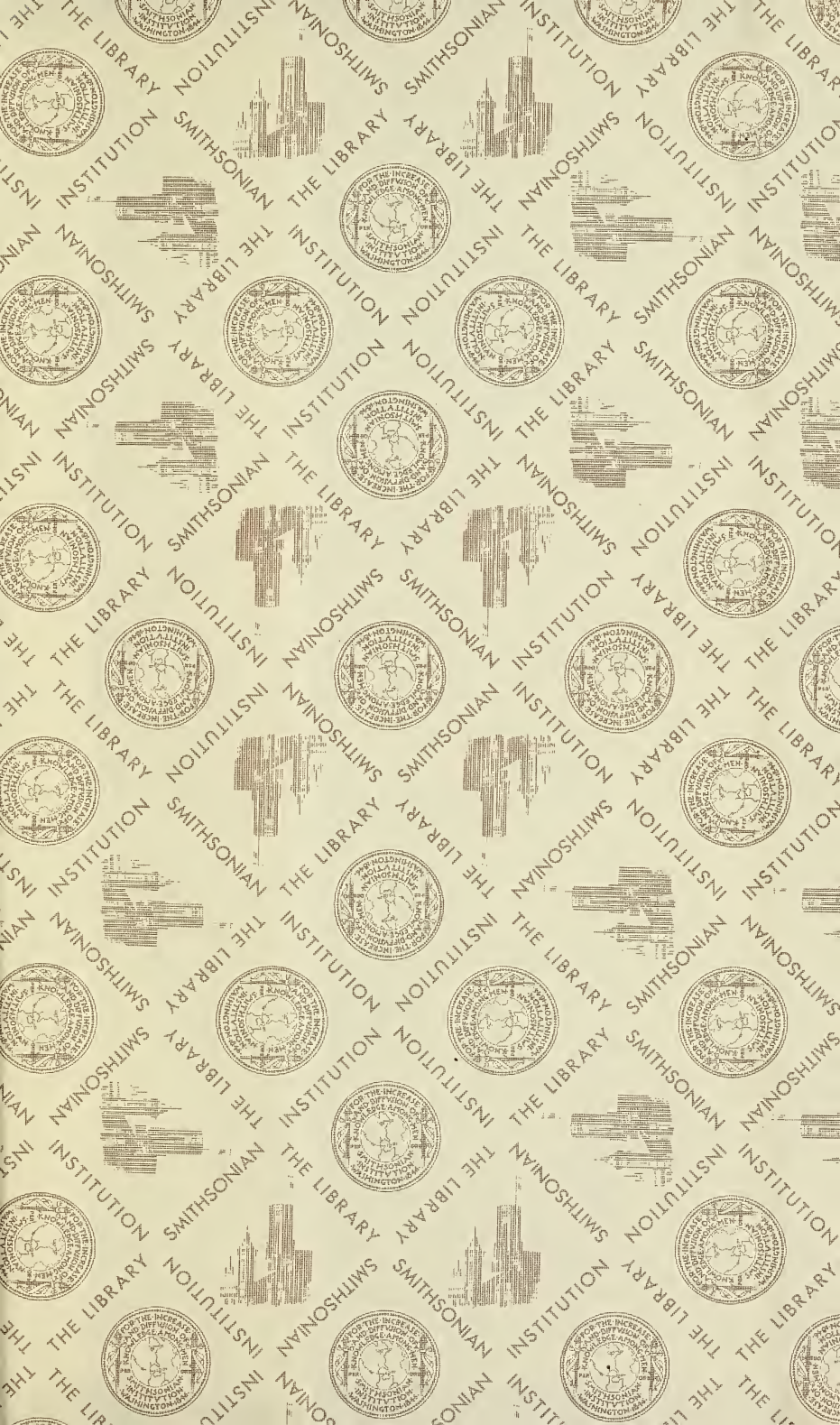
MEMBERS' ADVERTISEMENTS

The charge for Members' advertisements is THREEPENCE PER WORD. Payment must accompany the advertisement, which must be sent on or before the 15th of the month to A. A. PRESTWICH, GALLEY'S WOOD, EDENBRIDGE, KENT. All members of the Society are entitled to use this column, but the Council reserves the right to refuse any advertisements they consider unsuitable.

For Indian Birds buy direct from Baidyanath Acooli, 8/5a Barrackpore Trunk Road, Calcutta 2, India.

AVICULTURAL MAGAZINE, ten volumes, 1953–62, offers in cash or birds :—
W. Ferrier Brown, 85 Yew Tree Road, Southborough, Tunbridge Wells, Kent.





SMITHSONIAN INSTITUTION LIBRARIES



3 9088 00984 0950